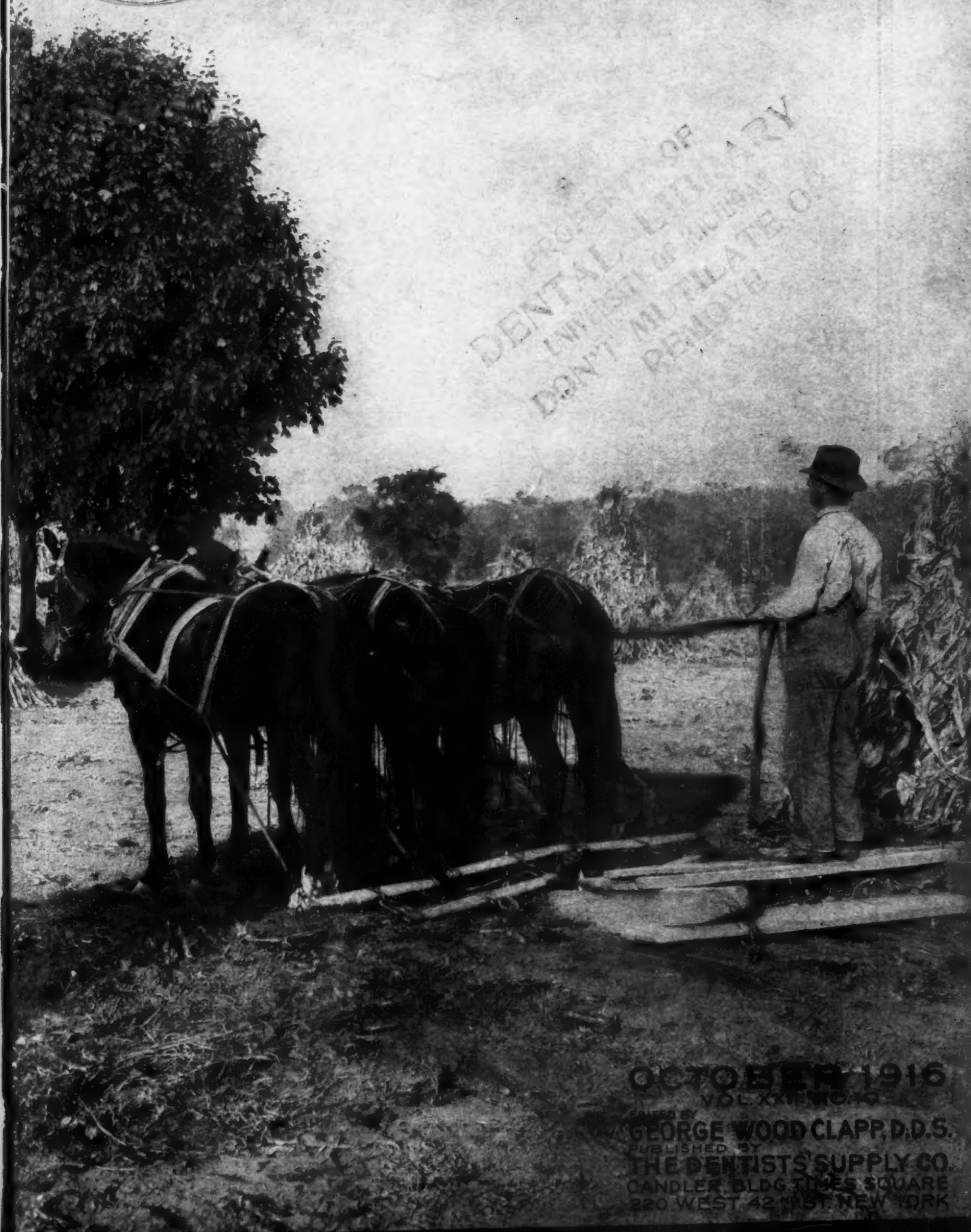


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GEORGE WOOD CLAPP, D.D.S., Editor

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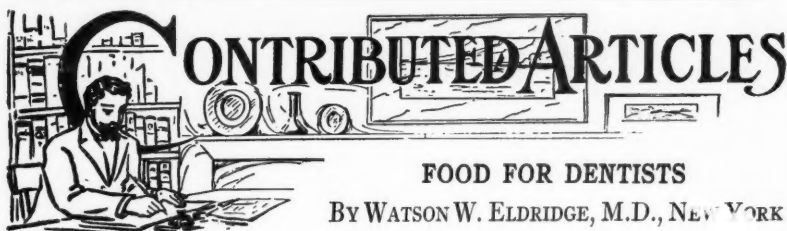
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OCTOBER, 1916

No. 10



FOOD FOR DENTISTS

By WATSON W. ELDRIDGE, M.D., NEW YORK

PROPER DIETARY

THIRD PAPER

When we are young and vigorous and perhaps live largely out of doors, everything we eat agrees with us. As we grow older, live more indoors and are less active, what we eat may seriously affect us.

Sometimes we find, accidentally perhaps, that upon substituting one kind of food for another we feel better, and it occurs to us that there must be a rational diet which would develop the maximum comfort and efficiency possible to us, under our way of living and working.

I have been sufficiently close to Dr. Eldridge's practice to know that many of his patients have been benefited by changing over from the highly refined foods of modern manufacture to foods which contain the elements necessary to repair the wastage caused by work.

The bran gems, of which he gives the receipt,* have nearly replaced white bread in our family, with easily seen physical benefits. When properly made, they are light, and when made with nut meats and raisins are delicious.—EDITOR.

The sum and substance of good advice about food is—Eat natural food, not food that has had an artificial preparation. Eat food that is

*Mix together 3 cups bran, $1\frac{1}{2}$ cups whole wheat flour, 3 level teaspoonfuls soda, $1\frac{1}{2}$ level teaspoonfuls salt; add 1 cup New Orleans Molasses, $1\frac{1}{2}$ cup sweet or sour milk, Raisins and nuts to taste. Bake in gem pans—makes 16 gems.

digestible and will call for the exercise of your digestive power. Do not eat food that is predigested or that has had its nutritive principles obliterated by chemical processes designed to give it "appearance" or "refinement."

More than one patient has asked what is the matter with this generation, that it had to "coddle" its stomach through fear of indigestion and other things; why our fathers had so little stomach trouble, and our grandfathers and older progenitors had even less? One patient, unwittingly, expressed a great truth when, after advice not to eat bread and pastries made of white flour, he said, "This is a puny generation. We can't eat this, we can't eat that. Our fathers ate whatever they wished and they had no stomach trouble. The only reason they didn't eat white bread was because they could seldom get it." That is just the point. They could not get things to eat which we are practically forced to buy, because those things had not then been manufactured. When our great grandfather wanted flour he took a sack of whole wheat to the mill and had it ground. He brought back a sack of whole wheat flour, flour that contained all the organic and inorganic principles, required for the proper maintenance of our body metabolism. He did not have a product that had been chemically bleached and treated to make it beautifully white, treated until most of the vitamine* content was killed.

When our great grandmother made rice pudding, it was made with whole natural rice, brown in color, not with the lovely white polished product, which has had the vitamins removed.

A letter from the Office of Home Economics, United States Department of Agriculture, contains this passage regarding polished white rice. "Polishing rice includes the removal of the outer layers of the grain and giving the grain, by mechanical and other means, a somewhat burnished appearance. The question of the use of polished or unpolished rice, from the standpoint of health is a matter upon which more or less has been written, particularly because of the relation to disease the use of polished rice is believed to have. The unpolished rice should be used because the branny layers of the rice grain contain minute amounts of substances to which the name 'vitamines' has been applied, which are essential to normal health."

In the old days, people did not eat cold storage eggs with their contents of hydrogen sulphide, cold storage tainted meats, or other forms of chemically preserved and treated foods. They ate natural food, containing all the elements of nutrition. They had to do this, as artificially

*The vitamins are portions of the bran parts of grains and other foods, not fully understood chemically, but essential to proper nutrition. They are lost in the preparation of white flour and greatly refined meals.

prepared foods were not then on the market as they are to-day. This is why our fathers and grandfathers escaped most of the alimentary troubles that afflict this generation.

Man seems to have lost that inherent ability, called instinct, which enables him to choose the proper foods. Animals do not commit the dietary blunders of which we humans are guilty. We have come to attach more importance to appearance than to quality. Our taste in many instances has become entirely perverted as evidenced by the preference of many people for the taste of white bread, to that of whole wheat or bran bread. Get back into the good old habit of eating bread from whole wheat flour and after a while you will realize how very insipid and tasteless is the white flour product. The same with rice and the products of oats, barley, etc.

Our errors of diet, however, are not confined to those forced upon us by food manufacturers, though these are many and grievous. We, individually, are guilty for many of our gastronomic sins. There is a large class of people in this country, known to most laymen as meat eaters, to most physicians as sufferers from many and various diseases directly traceable to the alimentary tract.

These people have an enormous appetite for meat. They eat it three times a day, and often to the exclusion of most other kinds of food. They would think they were starved if they had a meal without meat, and as for doing without it for a whole day or a week—well, that would be a crime too horrible to contemplate. Yet their meat consumption is largely responsible for their troubles. I am not a "vegetarian" by any means, but I know the consequences of too much meat and too little of other foods. Meat does not contain enough of the mineral elements required by the body metabolism, and when the diet consists of much meat and little else, the body suffers correspondingly. Meat contains iron, in quantity, and for this reason is good, but only in such amounts as supplies the body with the necessary iron. When this amount is increased, and other food, containing the other necessary minerals, is correspondingly decreased, trouble results. Meat once a day is more than sufficient for any human need and the rest of the daily menu should consist of vegetables, fresh and cooked fruits, whole grain cereals* and whole grain pastries, eggs, and milk. An excessive meat diet is usually found in those suffering from rheumatism, gout, high blood pressure, and the many ailments accompanying constipation. In the latter class

*Whole wheat flours differ in characteristics, due to manner of milling, cleanliness, etc. I am able to buy the finest whole wheat bread I have ever eaten from Mr. Fischer, 154 W. 34th St. New York City, in 10 and 15 cent loaves. He tells me it is made from Wheatsworth Whole Wheat Flour.

of cases, however, I think white bread is equally or more largely responsible, though we find as a rule that excessive meat, white bread and sedentary habit, go hand in hand, pretty uniformly.

Of the other errors for which we individually are responsible, can be mentioned, excessive alcohol, sugar, and stimulating drinks such as tea and coffee. There is no necessity for dwelling on the subject of alcohol. It is already well known to all. Concerning the harm done by an excessive sugar intake we shall first have to consider a phase of its chemistry. Sugar has a tremendous affinity for lime, so much so that whereas water will ordinarily take up one part of lime to the thousand, if a little sugar be added it will take up thirty-five parts of lime, that is, hold it in complete solution. Sugar has a greater affinity for lime than has any other of the compounds taken into the body. The body is composed of about three-fourths water by weight and it takes one part of lime to the thousand to keep that amount of water saturated. Through an excessive sugar intake the water calls for more lime and the affinity between the lime and sugar is such that unless additional lime be found elsewhere, the lack will be supplied from the bones, teeth, etc., leaving these body structures greatly deficient. The bones will become soft and weak and the resistance of the teeth to decay will be lessened. It might be mentioned here that the lime necessary to complete the water saturation will in all probability *not* be "found elsewhere," because lime is one of the very minerals which is so lacking in our diet on account of its absence from processed flour, rice, etc., and which is therefore already deficient in the body.

Coffee and tea are of course greatly abused articles of diet. I cannot say food because they are in no sense food, and both contain in greater or lesser amounts a powerful stimulant of the nervous and circulatory systems, namely; caffeine. I do not believe that, taken in moderate amounts, they have any very deleterious effect on the body organism, but the trouble is that they are seldom taken in moderate amounts. The coffee drinker, or fiend, usually wants coffee three times a day and two or three cups at a meal. The tea drinker is even worse, having his tea between meals and at bedtime. This constant stimulation to false activity of the systems affected is bound to weaken them in time, and the presence of caffeine in the stomach will in addition, retard digestion. These habits, however, like the alcoholic, are so well known and understood that expatiation is useless here.

The evils to be pointed out are those of eating "refined" foods and too much meat.

Bran bread is especially recommended to sufferers from constipation. It not only contains the mineral ingredients and vitamins necessary

to body health but the bran flakes themselves are needed to stimulate intestinal peristalsis.

There are of course various diets for various conditions but space here is too limited to go into all of these. There is also much interesting information which has been obtained through recent experimental work relative to individual idiosyncrasy to certain forms of protein foods, which cannot be detailed here. For the general guidance of the average person, however, it is safe to say that the dietary should be made up of a small amount of meat once a day or less, or eggs in place of meat, vegetables in variety and season, always fresh when procurable, bread and pastry made from whole wheat or bran flour, raw or cooked fruits, preferably the latter, and milk. Of the vegetables, those which should be preferred in an anti-constipation diet are, spinach, lettuce, endives, asparagus, string beans, kale and greens of all kinds.

125 W. 58TH STREET.

THE PROBLEM OF MOUTH WASHES

BY CHAS. M. MACKENZIE, D.M.D., SPRAGUE, WASH.

When we realize how extremely difficult if not impossible it is to approach a condition of sterility in the mouth, it is apparent that the antiseptics widely used by the dental profession are not based upon the result of scientific investigation. In fact, the majority of these so called antiseptics are chiefly the salts of heavy metals and in most cases they are not only ineffective but positively harmful, since many of them are extremely poisonous and while in some instances they may destroy the organisms they do not have a similar effect upon their enzymes.

The most serious fault, however, is that most of the stronger antiseptics are salivary depressants, consequently they diminish the flow of saliva and promote stagnation in the oral cavity.

It is a general physiological principle that a condition of stasis in any tissue or cavity makes for decay and disease; for this reason more harm than benefit results from their use.

After a varied experience with antiseptics in the mouth, I have come to the conclusion that it is folly to employ them for the purposes of inhibiting the growth or suppressing the activity of micro-organisms.

In fact, in prescribing a mouth wash, these factors should be ignored and our aim should be to increase the quantity and alkalinity of the saliva, for it is a fact that protection against disease is afforded to nearly

all the tissues largely by the fluid in which they are bathed and since the saliva is the natural protective fluid for all the oral tissues, our efforts should be to use a natural means of stimulating these protective substances when a mouth wash is indicated.

For this purpose I find that lemon or grape juice is the best organic acid. Lemon juice is one of the best natural antiseptics we have. Use an ounce of lemon juice to six or eight ounces of water, as the case may require, which may be sweetened to individual taste. This simple wash not only increases the quantity and alkalinity of the saliva but calls forth an increased quantity of ptyalin which renders soluble an insoluble starch debris, thus performing a natural service that cannot be effected by artificial means.

Sulphocyanate of potassium increased by organic acids, while perhaps not of great importance, has an inhibitory effect upon lactic fermentation, and for this reason alone would appear to be beneficial. Opinion, however, is still divided regarding the real significance of sulphocyanates in the saliva.

Phosphates and chlorides are greatly increased by this wash and the protective action of these bodies upon the teeth and mucous membrane is undoubtedly known to all. It has also a favorable action upon mucin. And it would appear that nature intended that the organic acids which are widely distributed in fruits should be used for this and other antiseptic purposes.

In fact the progressive manufacturers of dental pastes and powders are beginning to recognize the importance of substituting the organic for the inorganic acid constituents of these articles, for Pickerill's work along this line proves beyond question the advantage of employing elements which have been transmuted from the inorganic to the organic stage.

It is a matter of interest to note that this is the very point that promises to revolutionize our materia medica of to-day. When the medical and dental professions awaken their minds to the necessity of prescribing the various elements in their more advanced evolutionary form, we will help immeasurably to remove the speculative aspect of therapeutics.

If you are interested in the advanced trend of thought along this line let me urge you to read that splendid address of Professor Handy before the A. P. A. recently published in February *Life & Action*, Indo, Am. B. Co. Chicago.

Without further digression let us return to the original theme. I know of a prominent physician who uses nothing but lemon juice in sterile water as an antiseptic wash for the most serious wounds and sores. I use and recommend it not only as a prophylactic wash, but also in the

treatment acute inflammatory conditions of the mouth, because I get a natural mild antiseptic free from protoplasmic poisons.

In conclusion let me recapitulate; it is not in reality the antiseptic properties of a wash we should consider, for the work of Bessenge, Hunt, Chasserant and Richet has demonstrated that in order to reduce the number of organisms in the mouth, the various drugs used were too concentrated to be tolerated as a mouth wash. Consequently a little reflection will bear out my contention that a wash containing any of the organic acids (for they are all antiseptic in a modified degree) will offer not only the advantage of exciting the greatest amount of these protective substances, but moreover, give rise to an increased flow and alkalinity of the saliva for sometime afterwards, and it is worthy of note that this physiological benefit is not confined to the mouth, for the gastric, pancreatic and biliary secretions are favorably influenced, proving the far-reaching effects of natural salivary stimulation.

A COMPLETE DESCRIPTION OF MY MOST SUCCESSFUL OPERATION

BY H. M. DEMAREST, D.D.S., PATCHOGUE, N. Y.

The condition presented is a large anterior cavity in the upper first molar, decay extending to the pulp.

Procedure. The frail walls are chiseled away and soft dentin removed with an excavator and field cleared by a stream of tepid water containing borine. I now place cotton roll in position and dry cavity with cotton pellets, not caring to get it too dry as I find my treatment works best in a cavity not thoroughly dried. Now a small bit of arsenical fibre, about as big as this (o), is moistened with creosote and placed in a receptive position in the cavity as near pulp as possible. Excess creosote is absorbed and cavity carefully sealed with Pro-Tem, insuring no chance for any arsenic to escape. I allow Pro-Tem to lay solid against the adjacent tooth to help retain it, especially in a saucer-shaped cavity in which I have not used a bur. For two days—possibly three—the patient is dismissed. This is the procedure unless I find evidence of an inflamed pulp. In which case a sedative treatment for a day or two would precede the devitalizing treatment.

At next sitting the Pro-Tem is removed, using a spear drill in engine, arsenical fibre removed and cavity flushed with warm water and borine. With a large, round bur all decayed tissue is removed until the tiny crown

point of the pulp cavity is seen; then with a fine, round bur I make a puncture very gently; then enlarge with a large, round bur and finish cutting the roof of the chamber with a fissure drill and flush with water and borine. Be sure the entire roof of the pulp chamber is removed as one can not do good work in a root canal that is under a ledge of tooth structure.

Next procedure is to apply the rubber dam. But first the field must be made ready; that is, all tartar and débris removed from around teeth to be isolated, then flush with water and borine after which the cervical margins are painted with iodine.

The manner of placing the dam varies according to the tooth and position, but for this case (anterior cavity in upper first molar either side), cut two holes, one for molar and one for bicuspid, grease holes slightly with cocoa butter and slip on the teeth, bicuspid first. Then with thumb and forefinger of left hand force up lingually and buccally, ready for clamp, simply placing it in position with clamp forceps and releasing finger and thumb; by same method clamp the bicuspid. Now all this time my assistant has kept the flaps spread so that I had plenty of room and light.

The whole area is now dried and with new broaches of size to fit the case, the nerve tissue is removed from the canals. After drying the canals as much as possible, I loosely pack them with cotton and then place in chamber a pellet of cotton saturated with Pus cure liquid, seal with Pro-Tem and dismiss for a day or two.

This case could be completed without another sitting but I prefer one more for several reasons. First, the patient has been patient long enough for one appointment. Second, there is more or less inflammation due to nerve removal. Third, we nearly always get a bit of seepage in the canals. I place cotton in the canals by rolling between thumb and finger upon a fine, smooth broach a shred, thick or thin, according to the calibre of the canal.

At next sitting the temporary cement is removed and dam placed in the same manner as before. The dressings are removed, canals reamed and enlarged by use of broaches and drills. If Gates Glidden drills are used, great care should be taken; begin with the finest and gradually enlarge. Dry cavity and canals as much as possible with absorbent cotton, no heated points are necessary because the filling material I use is right at home with a damp canal wall. For filling canals I use Pus cure.

As soon as the canals are filled, the excess material is taken out with absorbent cotton and pulp chamber is filled with copper cement. I now proceed to remove all frail walls, cutting out fissures if necessary and make cavity retentive for Synthetic filling. Cavity is then flushed out with alcohol and thoroughly dried.

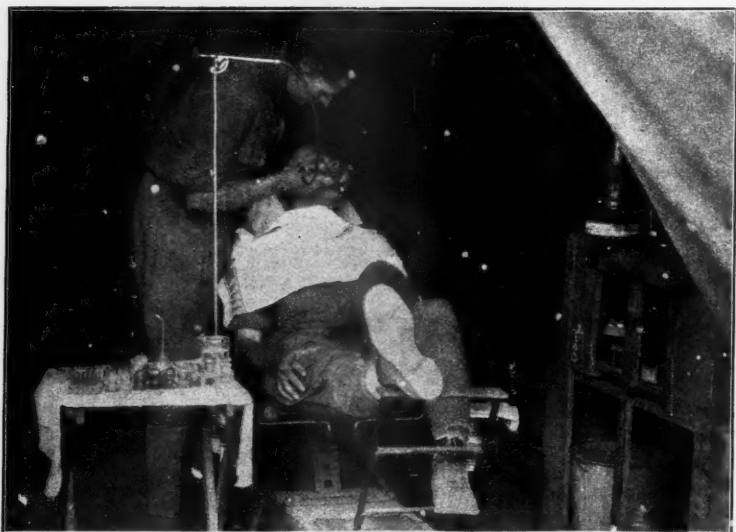
Next step is to mix the filling material as near the shade of the tooth as possible and of a consistence not quite as stiff as Caulk's Consistency Standard. I have ready for inserting and shaping the filling, several orange wood sticks, flattened, but of various widths and a coarse and a fine glass rod plugger, bent to an angle of 45° . With one of the sticks that will carry the quantity desired, I quickly fill all under-cuts and out of the way places, then carry the bulk of the material in place at once. Now remove the molar clamp and with your assistant holding dam so that no leak occurs, shape and contour hastily always toward the cavity margins and tap down for the bite (which has been noticed before dam was applied) with glass plugger first being rubbed over a piece of cocoa butter. It is impossible to get the material snug and wellshaped at the cervical margin and the V-shaped space well made with the clamp in position. As soon as the instrumentation is finished (and no instrumentation should take place after the filling material has commenced to set), replace clamp and cover filling with cocoa butter. Aside from the orange wood points and glass rods, I use for shaping filling, a flattened platinoid post made thin and soldered to an old excavator handle at an obtuse angle.

After eight or ten minutes the filling is ready to be polished and finished. Clamp is again removed and dam held in place by assistant, then with fine sandpaper and cuttle fish disks, surfaces are smoothed. For approximal surface I use first a lightning strip, followed by cuttle fish strip. The lightning strip being of metal and very thin, it can be readily passed down where filling knuckles against the bicuspid, smooth side toward the bicuspid with anterior pressure at the same time.

Trimming and polishing being completed, give the filling a coat of Synthetic varnish and allow to dry. Now remove dam. Be sure and cut the rubber between the two holes using round nosed, curved scissors, because if the filling is built right, it cannot be removed readily without. Remove all mucous and blood clots by the use of warm water and borine. Next take note of the bite. If there are any real points of tooth structure or filling material that come in contact, they should be rounded. Now dry the occlusal surface of the filling. Then with thin articulating paper over the surface have patient bite carefully, and the mark left by the articulating paper remove with a No. 8 round bur and keep at this procedure until the bite is perfect. You can tell when patient is biting correctly by observing the other side of the arch.

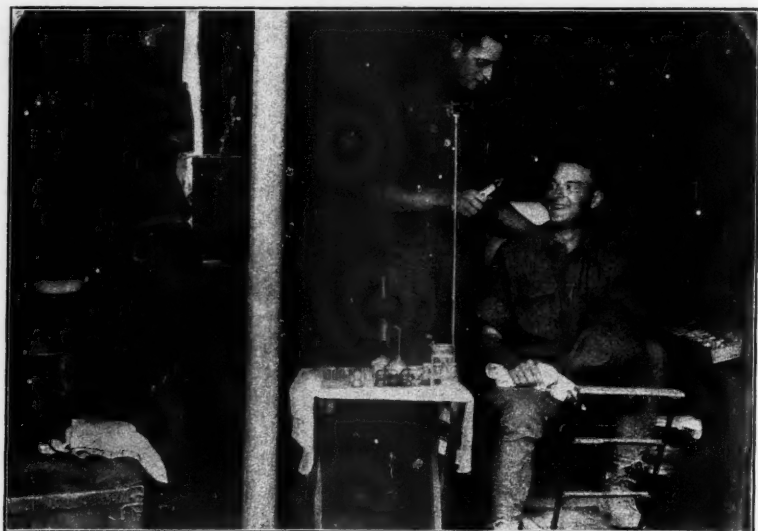
Such a filling as I have described meets with the approval of the patient, you can be sure of no root trouble, and the whole work is lasting and a thing of beauty. This is not a new step in operative dentistry, only an humble man's way of satisfying himself and his patients by use of materials already in good repute.

DENTISTRY AMONG THE TROOPS ON THE MEXICAN BORDER



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That gruesome task, that is, for the one in the chair



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The tooth is out and he is happy

ORTHODONTIA OF THE DECIDUOUS TEETH

BY E. A. BOGUE, M.D., D.D.S., NEW YORK

The facts set forth in this paper are so important to an understanding by the dentist of his opportunities and to the meeting of his opportunities for rendering professional service of the greatest importance, that they should be read until they are mastered. The entire profession is debtor to Dr. Bogue for the painstaking, unselfish and profitable labors in which he has been engaged.

I want to suggest the term "a vicious spiral" as better than Dr. Delabarre's "vicious circle" because the starting point and stopping point of a circle are on the same level, while a spiral constantly advances or mounts so that the stopping point is far from the beginning point. So it is with the physical conditions described; you may start anywhere but cannot come back to the same level of physical condition, but go on through mouth breathing to catarrh, deafness, inefficiency, etc.—EDITOR.

In concluding the articles on "Orthodontia of the Deciduous Teeth," published in the DENTAL DIGEST in 1912-13, the announcement was made that if at six years of age, the temporary or baby teeth still remained perfectly regular and close together, the prognosis was clear that the permanent teeth, which were to succeed these regular baby teeth, would inevitably be irregular.

The reason for this is, that at six years of age, the 10 upper temporary teeth of the normal child ought to occupy an arch as large as the necks of the 10 upper permanent teeth succeeding them, when these permanent teeth shall be fully erupted, leaving the additional width required for the crowns of the permanent teeth, to be provided for by growth in the arch between the ages of six and ten.

To get this result there should be large spaces between the temporary teeth, because the temporary teeth are so much smaller than the permanent ones that form the adult arch. If, therefore, these spaces do not appear, but the little temporary teeth remain, standing close together, it is quite evident that there will not be room for the larger permanent teeth to erupt regularly, as they ought to come through in the places formerly occupied by the temporary teeth which they replace.

It has taken years to find out, that what we need to correct is, *not* irregularity among the permanent teeth, but deficiency in the vital forces of the child which results in a failure to develop properly. Irregularity of the teeth is only one of the symptoms of this failure to develop. To illustrate; I present specimens of children's teeth as nearly normal as I have been able to procure. (See pages 632, 633)

(Continued on page 635)



Fig. 1



Fig. 2

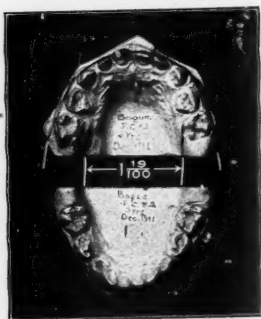


Fig. 3

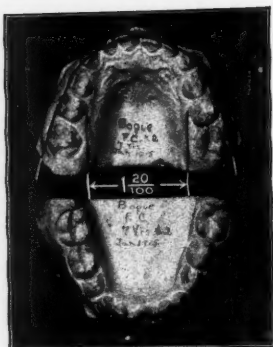


Fig. 4



Fig. 5

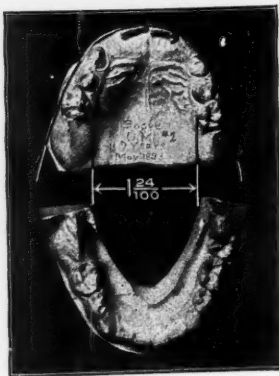


Fig. 6

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Fig. 7

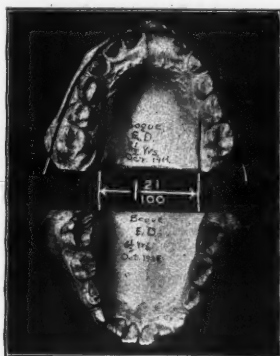


Fig. 8



Fig. 9

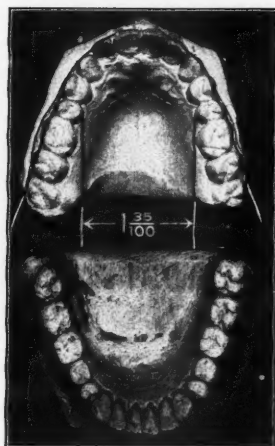


Fig. 10

The normal child at $3\frac{1}{2}$ years of age should have an upper dental arch of at least $1\frac{10}{100}$ inch lateral width in the temporary molar region.

Figures 1 to 8 inclusive show models of deciduous teeth from 3 years old to 11 years and 10 months—all nearly normal; and all having as broad an arch in the temporary molar region, as the normal adult arch at the bicuspid region. Figs. 5 and 6, models of the same mouth, show a lateral growth in two years' time of $\frac{1}{8}$ of an inch, by Nature's efforts only.

Figs. 9 and 10 show adult mouths nearly normal, for comparison with measurements of children's mouths from Figs. 1 to 8 inclusive. They show how nearly the normal child corresponds in width to the adult dental arches.

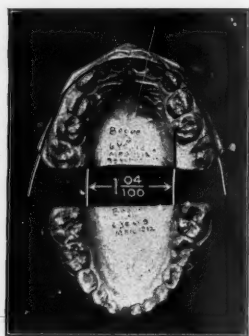


Fig. 11

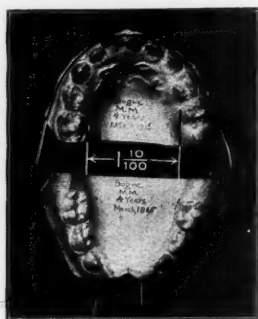


Fig. 12

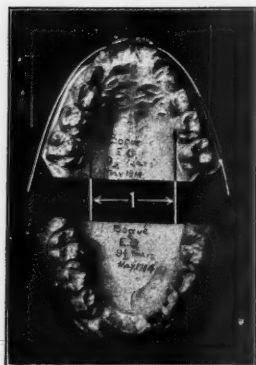


Fig. 13

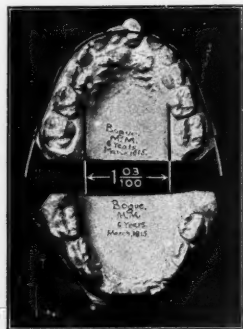


Fig. 14



Fig. 15

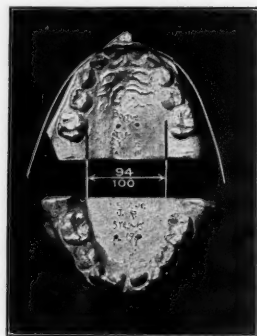


Fig. 16

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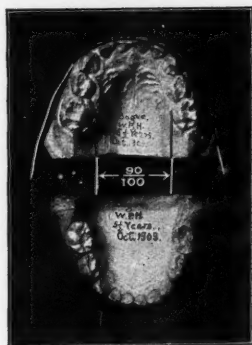


Fig. 17



Fig. 18

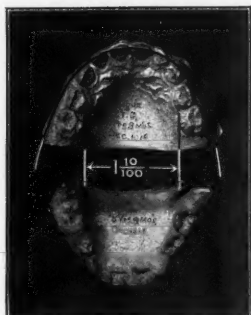


Fig. 19

Figures 11 to 19 show abnormal deciduous arches. They comprise more than 96% of all our school children.

If at 4 or 5 years of age the temporary dental arch in the molar region is not more than $1\frac{10}{100}$ inch wide, the diagnosis is positive that there exists an arrest in the child's development which it will not outgrow unaided.

Figs. 11 to 19 are models showing temporary arches, none more than $1\frac{10}{100}$ inch wide.

Since the above statement was written, having made many measurements on different cases, I am in a position to announce another fact that seems important, namely: that unless a perceptible spreading apart of these baby teeth begins to take place before the third year of the child's life, the prognosis for regularity among the permanent teeth is unfavorable; and if at the age of four years, the breadth of the upper dental arch between the lingual sides of the second temporary molars, at the gum margin, is not at least equal to 28 mm., it is absolutely certain that the child has already suffered an arrest of development which it cannot surmount and will not outgrow unaided. In illustration of this statement

I present a series of models of children's dental arches, taken almost at random from patients daily seen in private practice. (See pages 634, 635).

The same conditions prevailed in 96 per cent. of the five hundred and forty-three children seen at the Forsyth Institute, during 1915. This corresponds, exactly, to the results obtained by the Oral hygienists' examinations of school children, made in Cleveland two years earlier: 4 per cent. only were normal, all the rest defective. These cases are all less than 28 mm. broad at the second temporary molar region, and results of examinations made at intervals of from sixteen months to 6 years would prove that none of these cases without assistance could have become normal. Various methods have been tried to obtain normality, such as having the patient live out of doors as much as possible, having him practice deep-breathing and outdoor exercise or having him revert to mastication of hard and fibrous substances, and finally during the last few years in the administration of thyroid extract in cases where arrest of development has been quite apparent. All the cases here shown were, however, treated mechanically in accordance with the principles heretofore enunciated and when the necessary spreading of the dental arches has reached normality, any or all of the other methods have been gladly superadded to obtain the best results that could be reached. That those results have not always been what was hoped for, becomes evident when we find that in cases where the X-ray test has been applied to determine the results of our corrective work, we have sometimes found impacted teeth far up among the roots of the upper incisors, and occasionally have found that some permanent teeth are missing altogether, on which occasions the deciduous teeth that remain attain an unusual importance.

There are two functions of a child's life that are often interfered with at this early age; mastication and respiration, and each of these functions has an influence upon the other.

For example, the savage Indian baby, and the baby of the negro field hand as well, begins to chew on something at the earliest age, long before any teeth appear to chew with; the civilized mother or nurse takes away most everything which their babies put into their mouths, depriving the jaws and face of a necessary stimulus for growth. If growth of the jaws is interfered with, that interference often extends to the nasal passages which remain too small for the passing of sufficient air, and so it happens that deprivation of proper masticating exercise interferes with the proper development of the breathing apparatus. On the other hand, if the child takes cold and develops an adenoid, and the adenoid is allowed to take its own course, mouth breathing inevitably follows; the tongue is withdrawn from the roof of the mouth, a narrowing of the

upper dental arch takes place, the proper articulation of the teeth is interfered with and their masticating efficiency lessened.

Dr. Delabarre, Director of the Orthodontic Department of the Forsyth Institute, has employed a very expressive French phrase to describe the conditions that we are now considering, viz: "A vicious circle." He does not ask which comes first, or which is cause, and which effect, when considering narrow dental arches and constricted nares that are found in the same individual with adenoid growths, nor has he undertaken to indicate cause or effect, when in the same individual where adenoids are present, are found also spinal curvature, "chicken-breast," stooping shoulders, slouching gait, indisposition to any prolonged exertion, and general inefficiency.

In examining this "vicious circle" we have all had our attention drawn to the most accessible and easily visible feature which proclaims the defects thus characterized, viz; the teeth. By means of their position, appearance and conditions, we cannot only diagnose at a very early age the presence of this "vicious circle" of physical defects, but we can utilize these teeth to break into that circle and set in motion influences for the amelioration of those conditions, and we can do it, with a degree of certainty not always possible to the general medical practitioner and far earlier than the day when he is called in by the family to alleviate some acute attack which has unexpectedly occurred.

The Forsyth Institute is fully committed to the principle that as soon as a defect in a child's development can be distinctly diagnosed, it should, if possible, be corrected.

The principle which should actuate every one in whose care children are placed, is that our efforts should be directed toward early discovery and early correction of all defects in the temporary structures, in order that the permanent structures when they appear, shall be normal. As Dr. Delabarre says: "We want to learn about the intimate, interdependent relation Orthodontia bears to general bodily conditions; we want to be told that Orthodontia in its highest conception includes not only a knowledge of finished technic, but a vastly broader conception of its true field, necessitating coöperation with the Rhinologist, Orthopaedist, Pediatricist and every one who has to do with the mental and physical development of the child."

All illustrations shown in this paper are reduced one-half natural size.

(To be continued)

PROGRESSIVE PROSTHETIC CLINIC*

ARRANGED IN FIVE DIVISIONS

STEP NO. I. BY H. J. HORNER, PITTSBURGH, PA.

It will be our purpose in this clinic to show in five successive steps:

A. Diagnosis of the case and the manipulation of modeling compound.

B. Full upper and lower impression.

C. Partial upper and partial lower impression.

D. Mandibular movements as taught by Prof. Alfred Gysi.

E. Setting up the teeth on the Gysi Adaptable Articulator.

By taking impression with mouth closed instead of open we are able to secure better adaptation and adhesion by compressing the soft tissues in the different parts of the mouth.

In diagnosing the case, make a memorandum chart of all individual peculiarities of case. Look for hard spots and locate same on chart. Note whether ridge is soft or hard.

Note length and strength of buccal attachments.

Note edge of vibrating soft tissue in rear of roof of the mouth by having patient saying "Ah." Determine length of plate to be at edge of vibrating soft tissue.

Where hard spots exist, make a relief of definite thickness. A metal relief fastened to the cast is better than trying to make the relief in the impression by shaving down with knife or scraper. Different gauges of metal are used from 18 or 20 to 28 gauge. Hard spots should be entirely relieved no matter what form the relief takes.

Trays should be accurately fitted so an excess of compound will not be necessary.

A good way for a beginner is to take a quick impression with plaster or compound and run a cast, a tray can then be fitted accurately.

In hard mouths, tray should be same length as plate is to be, and in soft mouths fit tray $\frac{1}{8}$ inch short of proposed plate so that compound can be embedded in vibrating tissue to compensate for soft ridge.

The rim of tray should be trimmed so as to be sure that it will not conflict with muscular attachments.

Compound while being used should be kept at a uniform temperature of 160°. This heat can be obtained by using a heater designed for that purpose.

Mould compound to shape wanted, and heat over flame until the

*Given at the Pennsylvania State Dental Society, June, 1916.

entire surface shows a gloss, then dip it in water at 160° and there will be no danger of burning patient.

Always be *sure* to dip it in water before placing in patient's mouth.

Do not use an excess of compound, as too much will have a tendency to stretch tissue. If you have not used enough, it is quite easy to add more.

See that compound is thoroughly chilled before trimming it. If you try to trim before it is chilled you may distort it.

Compound can be fastened to tray by holding it over flame until it sizzles and then quickly sticking it to dry tray.

Have compound thoroughly dry before trying to add more, as new compound will not stick to a wet surface.

STEP NO. 2. BY W. J. HOLROYD, PITTSBURGH, PA.

After selecting your upper tray, and carefully fitting it, take a small piece of modeling compound about the size of a walnut, model it approximately to the shape of the upper ridge. Heat it over the flame to a gloss, dip it in hot water, insert in the mouth, press upward and backward, at the same time have the patient give the lip and cheek movements. After waiting a few seconds, massage gently around the upper edge. Chill with cold water and remove from the mouth. This is the base impression. Locate the line of occlusion by drawing a line on the patient's face from the lowest point of the external auditory meatus to the lowest point of the wing of the nose. Build biting block on base impression with compound; while soft, insert in mouth, place occlusal plane former on the occlusal surface of ridge, press upward forming occlusal plane, the handle of former below but parallel with line drawn on face. Remove base impression, trim to contour. We will now start the lower impression. Select occlusal plane tray, heat modeling composition sufficient to take practically the full impression and biting block, and only insert in the mouth after you have the upper base impression in the mouth. Have the patient bring the lips together and swallow. This generally brings the lower impression to the proper height of the lower teeth. Remove and finish the lower by adding compound wherever needed; heat, then insert in the mouth, have the patient close, swallow and give the face movements. This generally completes the lower. Revert now to the upper impression, which is only two thirds completed. If you find that the modeling composition in the region of the fronts is not high enough, add to it, heat, insert in the mouth with the lower impression in place, have the patient bite firmly and give the lip and cheek movements. Then finish the back third. The impression will generally

be scant along the tuberosities and vault of the mouth. Build this up freely, heat just the rear third, insert in the mouth, have the patient close and give the face movements. This completes the upper. Having the two impressions in the mouth, put on a face piece in front. Mark the centre line, high lip line and the corners of the mouth over the cuspids. This face piece keeps the two impressions in relative position, while they are removed from the mouth and placed on the articulator.

STEP No. 3. BY C. J. MCCHESENEY, PITTSBURGH, PA.

Modelling compound is indicated in partials for taking impressions, because it can be so manipulated that only those parts of the teeth will be included in the impression that are necessary to the finished denture, and only those undercuts which can be used, retained, all others eliminated, thereby making it possible to put the finished denture in the mouth, without any filing or fitting of any kind.

The trays used for either upper or lower are plane surfaces without any rims, being merely carriers to hold the compound.

I will give the technic for a partial lower with teeth in the anterior region, and bicuspid and molars out; this being the most common case met with in combination with an edentulous upper.

Diagnose your case; examine for abnormalities, determine whether clasps are indicated and on what teeth, and how the plate is to be put in the mouth.

Form the compound on the tray to the approximate form of the desired impression, warm, and place in the mouth, close jaws, hold heels of tray against biting block, or occluding teeth, and have patient swallow once. Remove compound from face of teeth.

Hold in position until compound is in a moulding state, remove impression in the same way that you expect to remove the finished denture, dip in ice water, and immediately replace in the mouth, in the manner you expect to put the plate in. Hold till cold.

Place a little compound on occlusal side of tray, have patient bite in it, and trim until the patient bites with equal pressure at all points.

Warm the rear third, add the necessary amount of compound, diagnosed as required, to fill the space in the molar region, warm, place in the mouth, have patient close, swallow once, and give the face movements (lips forward as in whistling, and then pulled back in a wide grin).

Take a warm piece of compound and lay on the face of the teeth to supply that part necessary to a complete model. Remove this face piece, then the impression, and then fasten the two together out of the mouth.

Use a Gysi Adaptable Articulator, it will add to the comfort of the patient, and the efficiency of the denture.

The same technic applies to uppers as to lowers, except that you do not have the patient swallow, and you have them give the face movements for both the first and second step.

After getting a satisfactory impression, do not spoil it by using so unreliable a material as plaster of Paris for model. Use Spence's plaster, or Weinstein's Artificial Stone. The latter preferred for partials, because if accidentally fractured it is easily repaired and Spence's is not, on account of the coarse texture of the material.

When you use the above materials trim your models after two hours, while the material is still soft, as they are extremely hard and difficult to cut when thoroughly set.

(To be continued)

HOLLISTER, CALIF.

JUNE 30, 1916.

Editor DENTAL DIGEST,

I think it is high time that the profession protests against the use of condensed milk, by mothers, for feeding babies. Every few weeks a child, usually about two years old, is brought in with nearly every tooth decayed (?) down to the gums, and suffering from exposed pulps. So far, I have traced every case to sweetened condensed milk prescribed or recommended by the family physician.*

F. L. DUNCAN

PYORRHEA AND THE GENERAL HEALTH

As dentists, we have ever failed to attach enough importance to the consideration of the general physical condition of our pyorrheal patients. No doubt our vision has been somewhat narrowed by the rather contracted area in which our operations are performed. When we can so advise our patients as to improve their general health, and accompany this advice with intelligent local treatment, then, and then only, will our efforts be crowned with permanent, satisfying success and Pyorrhea no longer prove a menace to our patients or a catacomb for the burial of our professional reputations.—R. L. JEFFCOTT, IN NORTHWESTERN DENTAL JOURNAL. (*Dental Topics*.)

*Are there others finding these same conditions?—EDITOR.

REPAIRING CARIOUS TEETH

BY HARVEY RICHMOND, D.D.S., WINDSOR LOCKS, CONN.

The field of operative dentistry is broad and offers so many different methods of repairing carious teeth that it is often hard to decide just which is the best way to meet all conditions.

At this advanced age of dentistry, the more operative skill we have at our command the less inclined we are to resort to extracting or even crowning those teeth that seem at the first glance almost beyond hope of filling. Especially has this been true since we were given that valuable process of filling by the Inlay Method.

A case recently brought to my attention appeals to me in that it involved the restoration of two upper central incisors, where the mesial proximal corners had been lost through an accident. It was my desire to restore this lost tooth structure without devitalizing the teeth, which was possible, as the pulps were not yet involved. I might say here that the patient had lost several of her posterior teeth, which made the case more complicated, as something was needed to stand the strain and stress from the contact of the lower incisors during the process of biting or masticating.

To meet this condition the gold inlay was decided upon. The patient objected to gold, though I considered it a conventional way of repair. Finally, to overcome the conspicuousness of the gold, I thought of the idea of filling these teeth with the combination of gold inlay and synthetic filling.

First, the cavities were prepared as for all gold inlays. Then, the wax patterns were taken and from the face of these was carved out enough wax to allow a good sized body of synthetic filling, being careful to leave undercuts for retention. After the inlays were cast, they were set in place in usual manner, leaving for a period of ten or twelve minutes (depending upon the setting quality of cement); then the synthetic fillings were inserted in the cavities carved in the face of the inlays.

These operations, when completed, would defy detection and I have considered them my masterpieces.

GIFT TO DENTAL SCHOOL

Columbia University has recently received from Mr. James N. Jarvie a gift of \$100,000 for the new dental school to be connected with the university, for which an endowment of \$1,000,000 is being sought. It is now expected that the school will open in a temporary building near the College of Physicians and Surgeons.—*Medical Record*.

THE SHOULDER CROWN AND ITS TECHNIC

BY FRANCIS C. JONES, D.D.S., PORTLAND, ORE.

In presenting this form of gold crown and its technic to the profession, I do so in an effort to improve the present telescope crown with its ever present disadvantages of irritated gums and ill-fitting bands, and the accompanying results, namely, gingivitis, pericementitis, pyorrhea alveolaris, recurrence of decay and lodgment for foci of infection.

In preparing the root for this crown do not cut it cone-shaped and cleave away the enamel as for the present telescope crown, but cut with a shoulder, equal in width to two pieces of 30 gauge metal (Fig. 1). I prepare this shoulder with carborundum stones and safe sided disks, later truing it up with a plain fissure bur held in the contra-angle hand-piece.



Fig. 1.

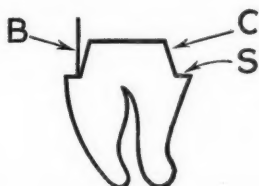


Fig. 2.



Fig. 3.

Extend this shoulder to, or slightly underneath gum margins on lingual and buccal aspects and then conform whole circumference of shoulder to as near a plane as possible thus bringing spaces, placing this portion in protected area, and facilitating ease of swaging and burnishing operation.

Next take measurement with wire of inner circumference of shoulder and make band of 30 gauge, 22K gold plate. Fit band "b" tightly around "c" and cut to rest snugly on shoulder "s" (Fig. 2).

Remove band, place on piece of same plate as band or 30 gauge platinum and burnish plate to fit shoulder—rest of band, and solder to band with minute amount of solder 22K. Now cut out portion which closes hole in band. Trim around outside keeping about one millimeter from band and you now have shoulder on band to correspond to shoulder on root (Fig. 3).

Now burnish this shoulder on band to close adaptation with shoulder on root and take explorer and mark junction with cave-surface angles. Trim off excess and perfect adaptation to root shoulder. Now cut top of band off till about $\frac{1}{8}$ of an inch above shoulder. Replace on root and take impression. Pour model and construct crown band, contour and fit to shoulder cap. Now remove shoulder cap from model and

solder (with 22K solder) to crown band from the inside, taking care to keep solder from flowing on surfaces which approximate tooth (Fig. 4).

Replace in patient's mouth and make sure of contour and contact points. Now take impression and bite the same as for any crown, place on an anatomical articulator, and carve cusps, swage, attach and reinforce in the usual way.



Fig. 4

The crown portion can also be made by the swaged shell method but more difficulty will be experienced in attaching the shoulder cap and perfecting the contact points and contour because the copper band used in this method cannot be soldered to the shoulder cap, therefore, crown could not be tried before finishing.

Now put crown in patient's mouth and correct occlusion and articulation if necessary. Now is the time to finish the fit at the cavo-surface angles, so that the fine margins will not be distorted during the other processes.

There is only one place for this crown to go, which is squarely down upon the shoulder, with no stretching of bands or irritating of gum tissue, and with its attachment to root as perfectly sealed as an inlay.

DO YOU KNOW THAT

Intelligent motherhood conserves the nation's best crop?

Heavy eating like heavy drinking shortens life?

The registration of sickness is even more important than the registration of deaths?

The U. S. Public Health Service coöperates with state authorities to improve rural sanitation?

Many a severe cold ends in tuberculosis?

Sedentary habits shorten life?

Neglected adenoids and defective teeth in childhood menace adult health?

A low infant mortality rate indicates high community intelligence?

Louisville Medical Journal.

AN INTERMAXILLARY SPLINT

BY GEORGE MORRIS DORRANCE, D.D.S., PHILADELPHIA.

Demonstrator of Applied Anatomy, Dental Department, University of Pennsylvania

Fractures of the jaw occur in so many different varieties and positions that it is almost impossible to devise a splint which will meet all requirements. It was with the idea of having some simple, easily applied splint which would be satisfactory in the majority of cases, that I devised this one. Where a swaged intermaxillary or interdental can be easily procured, naturally, we advise it in preference to ours. However, in a large number of instances for infinite number of reasons, it is not possible to obtain one.



No. 1. Lateral View.

As shown in the diagram, the splint consists of a perforated plate of German silver with perpendicular sides. The sides on the anterior portion have an oval opening and here also the plate is absent so as to allow for an over and under bite. The splint is pliable so that the width between the plates can be increased or decreased to meet the requirements of a wide or narrow jaw.

Application of Splint. If the lower jaw is fractured, the splint is

fitted to the upper maxilla, and if too long is cut off. In case of fracture of the upper jaw, the splint is first applied to the lower maxilla. The sides are trimmed down or the edges bent outward—if they press against the swollen gums. The lower jaw is then pressed up in place to see that it articulates normally. The splint is then removed and dried. Kerr's modeling compound is softened over a flame, being careful not to burn it (never soften in hot water). The upper and lower grooves of the splint are filled to overflowing.



No. 2 Lateral View. Fracture between the right bicuspid and first molar

The plate with its contained compound is heated until the compound is softened. Test for heat against the patient's face. If it can be tolerated against the face, it will not burn the mouth. Now dry the mouth by putting in rolls of cotton and swab the teeth with alcohol. (If time permits, a hypodermic of morphia and atropine, one-half hour before you apply the splint will help to keep the saliva in check). Now quickly remove the cotton, introduce the splint with the hot compound and press it against the jaw. Then press the lower jaw against the upper, being sure that the normal bite is obtained and with the first finger press the compound around the teeth. Syringe the mouth with cold water to set the compound. A Barton bandage is applied as an

added security and to overcome any muscular action. The splint can be easily removed by using warm water and slight traction. The splint may be reapplied as many times as necessary, always using new compound, Kerr's being the best.

The patient is able to obtain liquids through the anterior opening and around the molar teeth. Do not allow any hot liquids. Wash and syringe the mouth several times a day with permanganate of potassium or a saturated solution of potassium chlorate. Always remember the



No. 3. Fracture between the right bicuspid and first molar

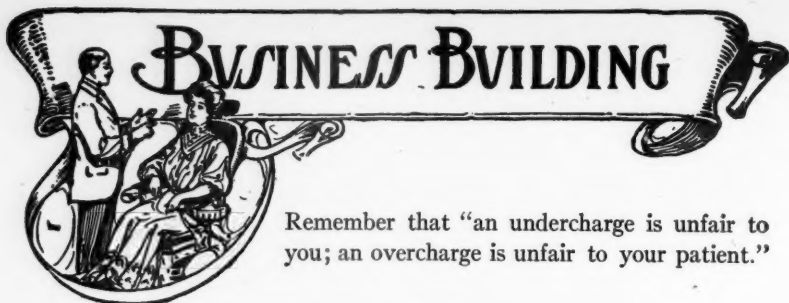
splint will hold the fragments where you place them, but do not expect it to reduce your fracture. This splint is applicable to all fractures of the jaws within the alignment of the teeth, angle or ramus. Be sure the normal bite is obtained.

I am indebted to Dr. A. DeWitt Gritman for valuable suggestions and to Mr. Dutcher, a student of dentistry in the University of Pennsylvania, for numerous modifications and the making of the first splint.

2025 WALNUT STREET.

The continuation of Mr. Samuel G. Supplee's paper has been unavoidably postponed until the November issue.





Remember that "an undercharge is unfair to you; an overcharge is unfair to your patient."

A LAYMAN'S VIEWPOINT

BY KATHARINE DODGE, TOPEKA, KANSAS

"Once upon a time" I was ushered into a dentist's office. The first impression, given by the immaculate white enamel and glass furnishing, was of absolute cleanliness. My apprehensive knees stiffened a bit.

While the Doctor scrubbed vigorously already irreproachable hands an assistant took the tray of instruments that had just been used, and put it in the sterilizer steaming reassuringly on one side of the room. From it she brought a fresh tray—more courage in my knees as visions of possible infection, conjured there by a recent ghastly tale of a friend's experience, were banished from my mind.

A tiny square of fresh linen was snapped in place on the head rest of the chair, and I took my place. After the first preliminary inspection was made, and a business-like looking instrument made its appearance, I clutched the chair arms, and braced myself for the customary ordeal.

The Doctor put down the tool and laughed. "You know I can't do anything while you are screwed up like that. I don't intend to hurt you anyway, but if I did, it would be much worse while your nerves are so tense. Just relax, and I'll promise to give you fair warning if it is necessary to hurt."

I tried to follow his advice, but cringed under the always detestable "buzz-saw."

"Now this is only noise—I'm not within sixteen miles of a nerve. I know you don't appreciate my music, but I'll just show you what a harmless little thing it is that is making so much fuss. See, I can run it against my finger"—certainly that deadly buzzer was not so alarming as I had thought it.

Presently he began to work on the edge of the tooth, and as always, he divined my fear. "Now don't worry, I never let an instrument slip in my life, but if it did slip my finger is right here to catch it—yes, I am doing this on purpose," and I was quickly convinced that he was not going to go through my lip or cheek, accidentally. More and more I was relaxing as

my confidence was established. He did not let me have one moment of unnecessary anticipation of pain.

Sensitive teeth? An appointment with a dentist heretofore had always been like a sentence to purgatory. True to his promise, though, when a sensitive spot had to be touched, he would say, "Now, if you will forgive me, I am going to interview that horrid little place just for an instant, then I'll go right away and I'll not come near it again without warning."

One can endure an occasional stab of pain if one is not expecting it every moment, and when it does come, gripping the chair in the belief that it is going to continue indefinitely—or return immediately.



An assistant took the tray of instruments that had just been used and put it in the sterilizer

Moreover, the Doctor much preferred to treat the sensitive spot to remove the soreness, but when it seemed best to go ahead he certainly knew how to minimize the suffering. Then, after the hurt, came a moment of rest—perhaps a pressure of the hand against the nerve in the face that had felt it most—and the comforting assurance that it was all over as soon as that was the case. I never had realized before what a large part of my pain had been anticipatory, not actual.

Nor did Dr. S. ever use on me that instrument of torture, the rubber dam. In clinic he demonstrated to the perfect satisfaction of the men who claimed it could not be done, that he could keep a large cavity perfectly dry, even though he took additional time to lecture as he filled the tooth.

struments were sterilized, but I saw no evidence of it, and his work may have been all right—but I went away a wreck, wondering if ever I could get sufficient courage to go back and let him complete it.

Such unpleasant mannerisms are not necessary—and they are very costly, for the dentist.

Caught with tooth trouble in a strange town I have been to a dentist supposedly “good” and had to submit to having hands and tools go into my mouth that made me fairly sick. Shabby, dirty old furnishings, an untidy doctor, instruments taken from and returned to cases in a way that left no possible doubt as to their *not* having been cleansed—such conditions are far more common than they should be. We are very squeamish about what goes into our mouths, and exquisite cleanliness means more to us than we let our dentists suspect—the more’s the pity!

Not many men can attain to the skill of Dr. S. but every dentist can set for himself the standard of spotlessness and order, as to himself and his equipment. It is indeed the principal evidence by which the layman can judge.

Every man doubtless thinks he can hold the business if he can but get it in the beginning. To prove oneself the cleanest man in a town certainly will get the business—then it lies with the man to show whether or not he has the skill to hold it.

PRINTED MATTER FORMS WANTED

I am desirous of getting out a neat and appropriate card for sending to doctors and other persons who refer patients to me. I also want a card to send to patients who fall out and don’t keep their engagements, and a neat letter form to be sent to each patient a year from the time I have rendered the last service, calling attention to the importance of having their mouths looked over once each year.

If brother readers of the *DIGEST* have anything along this line which has been successful in their practices, will they please send it to the editor for my benefit.—B. C. G.

“Moderation in food, moderation in drink, moderation in the joys and worries of life, moderation in work, moderation in recreation, equanimity of the mind, the soul and the body—these make for long tenure of life.”—*The Healthy Home*.

FAILURE TO STERILIZE INSTRUMENTS AS MALPRACTICE

By A. L. H. STREET, MINNEAPOLIS, MINN.

It is actionable negligence for a dentist, who has operated on a patient for an infectious trouble, to use the same instruments on another patient without sterilizing them, or his hands, according to a decision of the Pennsylvania Superior Court. But the court also recognizes the law to be that, notwithstanding such negligence, there can be no recovery of damages by the second patient without proof that the careless act resulted in directly consequential injury to him. This latter point falls within the general legal principle that injury must concur with negligence, in order to make negligence actionable.

Plaintiff, a young man, was in sound physical condition, excepting a troublesome tooth, and consulted defendant, a dental surgeon who drilled the tooth and filled it with a cement filling. Plaintiff continued to suffer and returned to defendant, who, immediately after treating another patient for an abscess, re-examined plaintiff's teeth, and, after taking out the filling, which relieved the pain, determined that it was a wisdom tooth which was causing trouble, and drilled into that to release gas supposed to exist around its root, and lanced the gum, although, in fact, that tooth was in sound condition. The lancing the court finds was performed without defendant either washing his hands or sterilizing the instrument—the same one used on the preceding patient. An abscess developed at the last point of operation and later required an operation for necrosis of the jaw. Suit was brought against defendant on the theory of malpractice, and the court upheld a verdict for \$1,025 for plaintiff.

To support his claim of causal connection between the abscess and defendant's negligence, plaintiff called several expert witness who testified that proof of the developing of an abscess at a point of lancing with an instrument not sterilized after being used in treating a chronic abscess for another patient, and without the dentist washing his hands after treating such other patient, warrants a conclusion with reasonable certainty that the complaining patient's abscess was produced by infection communicated by the dentist, especially when the patient is shown to have been in a healthy condition when operated upon.

"We realize the danger which may exist through any relaxation of the rule which requires causal connection to be proven to such a degree as to make its existence reasonably certain to the jury," said the Court, "and we likewise realize that to establish a rule which is practically impossible to prove this necessary element in the case, would be to place dentists beyond the reach of the law, though they had been guilty of the grossest of negligence."

"INVESTING FOR THE RAINY DAY"

Editor DENTAL DIGEST:

In the August DENTAL DIGEST, page 517, there is an article, "Saving for the rainy day and old age fund" by A. H. For the dentist who hasn't started to save, this article contains good advice, but there are several things that occur to my mind to show that A. H.'s plan for the man who can save is pretty discouraging and these remarks are only for that man.

You, Doctor Clapp, in commenting on A. H.'s article, bring out the point that upon the dentist's death, the home he owned does not give his wife an income, and if the value were in a 5 per cent. investment it would be better. Of course there would be some income if the house was rented.

The main thing to consider in buying a home is the fact that with very few exceptions, the day a house is built is the day it has the most value, after which it steadily depreciates in value. Architecture and fixtures become old fashioned, undesirable people move in homes near by, other owners do not keep up their property, but most of all the centres of business and residence change from year to year. Years ago it was the pride of a business man, or mother, to remark that grandfather did business on the same spot, or that a grandmother was born in a room up stairs.

These modern continual changes make real estate very unstable, so much so that the brightest men have been ruined in the last few years, misjudging values. Even the large life and fire insurance companies and savings banks have had to sell properties they took on foreclosure, at prices below their mortgages. I well know that men investing in real estate, will continue for centuries to make money in real estate, but very seldom in owning their home. The dentist who profits, will be the one who has the cash and knows values, and in times like these, buy a farm or foreclosed plot from a savings bank. The tendency with us all, however, is to buy more than we should, and put a mortgage on the property. This is speculation; the other and sure way is investment.

A. H. tells of a dentist with a big practice who had a lot of stock certificates, and gold bearing coupons "that were worthless junk," he finally invested in bonds, mortgages, and savings bank account. He had after ten years \$13,532.36 which paid him annually \$617.47 interest, about 4½ per cent. Then he puts \$8,000 into a four family house which paid 8 per cent. and has a \$5,000 life insurance policy.

I feel sorry the doctor bought such worthless junk, but as a hobby, if more dentists would study finance, instead of in their leisure time study-

ing theatre programs, automobile tires, novels or collecting stamps, works of art, minerals, etc., they wouldn't buy so much worthless junk as investments. One of the things the busy dentist would have found out, is that while he was accumulating the $4\frac{1}{2}$ per cent. per annum the \$13,532.36 was depreciating in value (in purchasing power) 4 per cent. or more each year. All statisticians agree on this; so he really did not get any interest at all on his principal during this ten years. His money I agree was safe, but he didn't make anything except (maybe) $\frac{1}{2}$ per cent. per annum. Then he became discouraged I guess, and bought the \$8,000 four family house, and got 8 per cent. on his money. I wonder if he figured in the 8 per cent. the time he took collecting rents, repairs, and depreciation, etc.

Now to the life insurance. A. H.'s article is entitled, "Saving for the rainy day and old age fund." And I suppose his insurance policy is a 20 year endowment policy, paying 4 per cent. with principal in 20 years, otherwise he couldn't use it on the rainy day or old age. If so, he just comes out even, without any interest after 20 years due to depreciated money.

I have painted a pretty blue picture, but by looking at poor art first, we are able to appreciate good art.

Authorities agree that with the new federal reserve currency giving the banks practically unlimited credit, and the \$450,000,000 new gold mined and put into circulation every year, money is going to continue for sometime in the future to depreciate, that is you will be able to buy less each year with a dollar bill. Now if you invest in a \$1,000 bond or put \$1,000 in a savings bank, at the end of one year if you sold the bond, or closed the savings account, with the money you could only purchase \$40 less of goods, because the prices of goods will continue to rise.

My suggestion is to put the money into goods or things, other than those represented by money such as he did and the right kind of real estate is one. My favorite is a good bank or trust company stock. Very few fail, and they have the opportunity of using all this extra credit and gold first. These stocks usually pay on the investment $4\frac{1}{2}$ per cent. but the value of the stock from year to year increases, so that as a rule they pay 10 per cent. or 20 per cent. on the money. Some of the convertible bonds of railroads, such as the Southern Pacific are also considered good, because if the stock in a certain time, sells for a certain price, you can convert the bonds into the stock, and get a handsome bonus beyond the interest you have received on the bonds.

To sum up, we dentists after saving our money should invest it so that if we have an income of \$1,000 per year to-day, and money depre-

ciates 4 per cent. a year, in ten years the security is worth enough to pay \$1,400 a year, and it must be in something that don't keep us constantly at work. Also owning bank stock gives us a certain prestige in our town, and when that old age feeling comes, we can move to sunny Tennessee, or to a bungalow in California or Florida, and the interest is sent along to us, but with that four family house, a home or *some* mortgages, you cannot get very far away from the village green.

THOMAS M. WEED.

NATURAL CLEANSING OF THE MOUTH

Editor DENTAL DIGEST:

In the August DIGEST, I notice an article on "A Natural Cleansing of the Mouth by Natural Means" and wish to take exception to nearly all of the statements quoted, at least I wish to take exception to the idea of discarding the tooth brush, until something better has been substituted. In these articles these good men condemn without offering anything but vague suggestions as to how the tooth brush should be replaced and in most instances ridicule and make light of the artificial manner we use in trying to better Nature. Might just as well advise against the use of the comb, the razor, the bath brush or the manicure set. Perhaps it would be just as well to discontinue using all these articles, but I for one would be opposed to doing so until substitutes that have been proven more efficient had been found.

In my own humble opinion the tooth brush when properly used and kept clean, is indispensable (as yet) as a toilet article and if it fails to entirely prevent decay it certainly makes the mouth a sweeter, pleasanter possession and its owner more welcome anywhere. I'd rather work on a dozen regular users of the tooth brush than one patient who doesn't use a brush and I'm sure all the rest of you feel the same way. Now then, if the brush makes a mouth so much pleasanter to work in why doesn't it do some good and why should it be discarded to experiment on something else?

I'm the proud father of two boys, four and two years respectively, and I've taught them to use the tooth brush with very happy results. When I first introduced the brushes we made a lark out of their use and by patient procedure along this line they have both grown accustomed to look forward to tooth brushing time with pleasant anticipations, and as a result they have beautifully perfect, clean white teeth. Their gums are firm and the brush *doesn't* hurt them but has a tendency to make them still firmer and pinker. You can't make me believe they would have taken to rubbing with cloths or roughened strips, etc., and made the lark out it

they do now and as a consequence their teeth would have suffered. If the brush has been such a benefit to them, why wouldn't it be to an adult and why should it be discontinued.

Until some of my learned friends who have contributed to the article in your August issue I mentioned above, have really discovered some substitute for the tooth brush I suggest they quit advising throwing the good old (and as yet reliable) tooth brush away.

I also advise mild, pleasant tasting mouth washes because they leave a clean, sweet feeling and thereby encourage cleanliness.

Very respectfully yours,

H. H. KREUTZMANN,
Hillsboro, Wisconsin.

MUSINGS OF A SIMPLETON

BY HIMS ELF

SOB STUFF

This is a sad, sad story. No comedy. Charles Chaplin is not here to-day. It is a tale of a conscientious man and a villain, and here it goes. Those who have tears, prepare to shed them now.

Once upon a time there was a very upright and conscientious dentist. His great aim in life was to give the very best service to his patients. He studied diligently and attended every dental meeting he could run to earth. The more he read and the more he meetinged, the more he became convinced that he was not doing all he should towards his patients. He was doing too much himself, too much that should be done by those better qualified.

So he, in his great desire to be honest, made a change. He sent all his extractions to an exodontist (i. e., a high-priced tooth puller) and then his regulating, heavens—he, a general practitioner, had been doing regulating. He sent them to an orthodontist. Then he attended one more meeting and—bang went his root canal work. All bad, he sent it to a rootologist. He came very near buying an X-ray outfit to make sure of his root canal work, but luckily he happened to read of its dangers in inexperienced hands, so off to the radiographist for the patients. His patients, who wore artificial dentures, could never whistle and eat sticky molasses candy with his plates, but, ah-ha, the prosthetist could make them that way, he had heard them say so, so to the expert they went for plates.

This left him his crown and bridge work and he was battling out a poor livelihood making a crown once a week when he happened to hear of specialists in this, so, conscientious he, he had to send them to the best.

One day he was cleaning a set of teeth, scaling the roots and all that, when a guilty thought assailed him. Rushing to his dental literature, he found that it was so. "Patient, get out of my chair. I have no right to be doing this. Your gums bled once. Some day you might have Riggs' Disease. Fortunately there is a specialist who does this kind of work. Beat it to him." "And who and what is this in my reception room? A patient with a swollen face, and will I lance that abscess? Not on your gumboil! Who am I that I should do such work? You for the oral surgeon."

And so, after a short time when the last surviving patient came in for an amalgam filling he had to insert it, but, oh, how he trembled for fear the alloy wasn't properly balanced.

Now for the second episode. As the weary patients plodded their lonely ways towards the various specialists, they had to pass the office of the villain of the piece. He was likewise a dentist and he had a sign out with dental surgeon on it.

The specialized patients, with one accord, thought to themselves: "It's a long way to specialdom. I wonder what a dental surgeon is?" And so in the office they went.

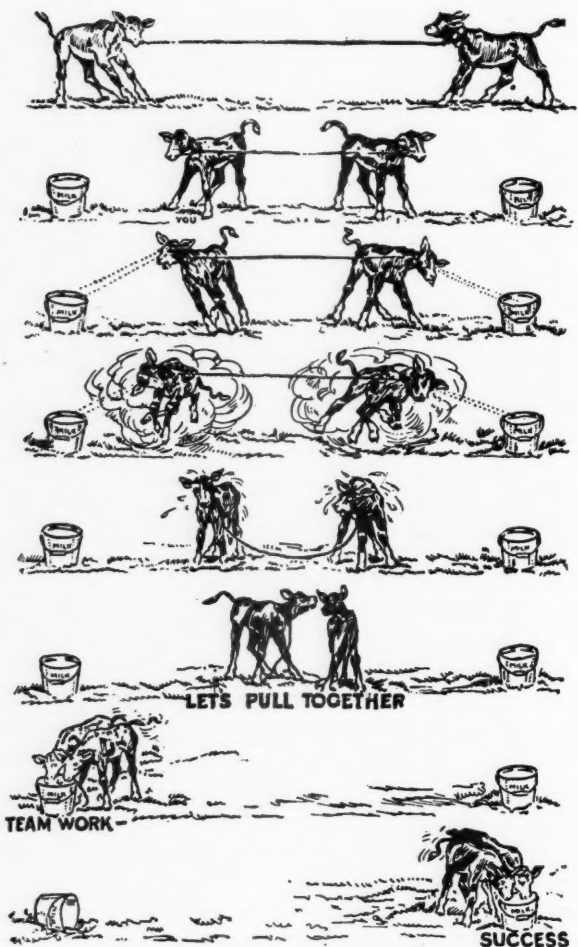
Did he send them away? He did not by a great deal. He got busy and filled the teeth, and pulled the teeth, and stuck the abscesses. He also went to dental societies and learned to say apicoectomy without laughing, and then he went back to his office and did it. The name streptococcus veridans had no terrors for him. He followed it up with endocarditis and arthritis and showed it all to his patients on his home-made X-ray pictures. He shoved gutta-percha points right up to the patients' eyes, and used a system for regulating that was absurd but did the work.

So, with one accord, all the patients said: "See America first. We will see the foreign talent later if we need them." But they never did.

And he engaged assistants, didn't even call them associates, and went merrily on his way until he became rich enough to both own an automobile and play golf. Greater riches hath no man.

Now for the moral. No; there is no moral. All this is positively unmoral, except that aren't you ashamed to be doing any kind of dentistry and taking the bread right out of the specialists' mouths. I am, and would say more, except that I have got to stop and fill some root canals, which, when finished, I devoutly hope no one will X-ray.—*New Jersey Dental Journal*.

COÖPERATION

(See opposite page)*Straus Investors Magazine*

A PROPER VIEW OF COÖPERATION

BY THE EDITOR

The illustration on the opposite page shows two calves who saw two pails of milk and desired to drink them. They did not realize at first that the milk in the two pails was identical. After a little, that thought came to them and they drank first one pail and then the other. *And each calf got just as much milk as he would have if he had gone his own way at first.*

Many dentists feel themselves pulled in opposite directions by their desire to serve their patients well and themselves well. They think of these desires as quite unlike and opposite things, and that if they gratify one desire they cannot gratify the other. They feel themselves to be like the calves in the fourth picture from the top.

If they will examine conditions as the calves did in the third picture from the bottom, they will find that these desires are not antagonistic but are closely related.

We can serve our patients well only by knowing how to do good work and having time enough in which to do it. We need knowledge, more knowledge, all possible knowledge. We need time to perform good operations, more time, all the time the patient's interests require.

To get knowledge, we must have time for study, for meetings, for rested eyes and mind, for good health, for imagination and careful technic. In one case, soon to be illustrated in this magazine, the dentist studied the conditions three months before he found out how to plan the work. He received nearly a thousand dollars for the case and the patient has several times personally expressed his delight to me, at the results.

Let us learn to serve ourselves well, that we may serve our patients well.

Get your desires together.

While a certain Scotch minister was conducting religious services in an asylum for the insane one of the inmates cried out wildly:

"I say, have we got to listen to this?"

The minister, surprised and confused, turned to the keeper and asked:

"Shall I stop speaking?"

The keeper replied:

"No, no; gang along, gang along; that will not happen again. That man only has one lucid moment every seven years."—*The Healthy Home.*

CORRESPONDENCE

DR. GEORGE WOOD CLAPP,

DEAR DOCTOR:

I have read with considerable amusement, the letter in the August DIGEST by Dinshah Dadabhai Dordi, entitled "Orthodox Orientals and Their Freedom From Pyorrhoea Alveolaris"* page 531. As a supplement to the "Arabian Nights" it listens well, but, for fear that it might be taken too seriously by American dentists, I want to ask you to let me give you a few facts.

My father and paternal grandfather were medical missionaries in Hindustan, the latter spending fifty years of his life there, and I now have an aunt who is in the same profession there. Also, when a boy, I spent four years in India with my father.

There is so much to say about India, if one knows much about the country and its customs, that I almost hesitate "starting anything" but I will have to say that when it comes to a vivid imagination you will have to "hand it to the Aryan brown."

When I was in India I was almost too young to know what Pyorrhoea meant, but I do remember the filthy habit of pau chewing (beetle nut and leaf). It is much more prevalent than tobacco chewing, even in the south of this country, and a far dirtier habit. It stains the teeth black, particularly at the gingival margins, and causes a copious flow of saliva. The frequent washings that the learned babu refers to are for religious purposes rather than cleanliness.

Away from the rivers, most of the water is derived from tanks dug in the ground, containing rain water. The hindus go to the nearest tank every morning (men, women, and children), wade out to waist deep and commence their sacramental ablutions. First they take off their loin cloth and wash it, then bathe the body and mouth, using the acacia twig as referred. After this the women of the family fill their clay or brass water vessels and carry the day's supply of drinking and cooking water to the house. As the dry season is sometimes very long, the population dense and the tanks often none too large, you can imagine the condition of the water. It is frequently covered with green scum. The hindu must have a natural immunity from typhoid.

Pyorrhoea is almost universal, my aunt tells me, and the people are so poor and there are so many of them that there is not much hope of reducing it.

The British Government and the American missionaries are doing

* This article was copied from The Journal of the American Medical Association.

their best to improve the conditions of the people, but they are up against some awful bigotry, ignorance, filth and poverty.

The very few educated hindus who get to this country are apt to give a wrong impression of this race. They are a combination of oriental mysticism and occidental education and do not represent their people, although they seem to retain the imagination and arrogance of caste, as illustrated in the first paragraph of Dordi's letter.

India is truly a wonderful country, but don't look for modern science from her.

O. D. BACHELER, D.D.S.,
Summit, New Jersey.

Editor DENTAL DIGEST:

On page 490, August DIGEST, the following question is asked and credited to Dr. Edward C. Kirk of *Dental Cosmos*:

"Has it come to pass in the Economy of God Almighty that humanity in order to live, to retain its dentures in a state of integrity must make a never ending fight with the tooth brush?"

Answer: It was not the intention of God Almighty that we live in warm houses and eat soft cooked food. If we persist in such an artificial life we must resort to some artificial methods to counteract the evil effects thereof.

In the winter of 1875-6 Dr. John M. Riggs went to Baltimore to lecture before the students and then he went to Washington to the Pre-historic Museum where he examined 164 skulls of the prehistoric Indians who had lived a wild life, out in open air constantly, eating thin food raw (as the other animals are wont to do), without cooking or the fancy mixings of various sodas, etc.

Out of the whole 164 skulls he found only two teeth decayed and two that had sufficient tartar to speak of.

Does not Dr. Riggs' findings answer the question so many are asking?

L. C. TAYLOR,
Hartford, Conn.

CORRECTION

The poem in the August issue, page 552 "The Strong Man's Song" was credited in error to Robert W. Service. The author is Edmond Vance Cook.

The verses were copied from one of the Dental Journals and we supposed the reference was correct. We are glad to correct the mistake.—EDITOR.



PRACTICAL HINTS

[This department is in charge of Dr. V. C. Smedley, 604 California Bldg., Denver, Colo. To avoid unnecessary delay, Hints, Questions, and Answers should be sent direct to him.]*

REMOVING STEELE'S FACINGS.—Whenever you have a case where you are compelled to remove facings from bridge in order to solder broken parts or replace with longer facings, immerse bridge in nitric acid for 2-3 hours and facings will drop off undamaged.—A. D. STEPHANOVE, D.D.S., Portland, Oregon.

LARGE AMALGAM RESTORATIONS.—One will often find that a large amalgam filling, where there has been a devitalization, will become loose. This can be avoided by placing a cement base and a small post, instead of a gutta-percha base, as is often the case. The gutta-percha gives, and consequently your efforts are in vain. Where there is one of the walls involved and a German silver or steel matrix can be made (like the band of a shell crown), I find it advisable to let patient wear matrix, returning the following day for its removal and the final dressing of the filling.—ALOIS D. NEWBERGER, D.D.S., Chicago, Ill.

HOW TO MAKE A PIN FOR A CROWN.—Take a 22 K. 30 gauge plate, cut into four or five pieces, V-shape, and place them on top of each other, and between each piece place solder 18 K., flux, bind with wire, hold over the flame and flow the solder.

You have a square pin which can be ground round if desired. I prefer a square one as it holds better. This makes a very rigid pin and an inexpensive one, as you can use scrap gold. It will stand soldering without affecting the pin, and you have a tapering pin that fits the root. I call this an emergency pin. Living in a town where there is no supply house, this gives a pin for immediate use. I make all my pins as I prefer them to any other.—R. B. BRASWELL, *The Dental Summary*.

TO RELIEVE PAIN IN INCIPIENT ALVEOLAR ABSCESS OR IN NEURALGIA.—Sometimes the pain is vague along one side of the jaw and not easily located. If it is found impossible to decide on any one tooth as the seat of the trouble, the pain may frequently be relieved by taking some menthol crystals, about the quantity that would lie on a dime, and placing them in half a teaspoon of water and holding the spoon over the gas till the

* In order to make this department as live, entertaining, and helpful as possible, questions and answers, as well as hints of a practical nature, are solicited.

crystals are melted down in the liquid. Dip some cotton in the melted menthol and pack this between the cheek and gum on the affected side. The menthol will sooth the pain and frequently relieve it entirely.—*Dental Review.*

QUESTIONS AND ANSWERS

Question.—Kindly let me know through the *DIGEST* the cause and treatment of the following. From a lady, 67 years old, in good health, in extracting the left inferior 3rd molar, May 5, 1916, I found the roots, from the bifurcation gone; the crown was very loose. I hesitated extracting as the tooth was sound, that is no cavity above the gingiva. It kept growing loose in spite of treatment until she insisted on extraction. The cavity, after extraction was large enough to put two ordinary molars in. I washed out a teaspoonful of matter, which was of a gray color and looked like dry pus although it was not dry. It had the appearance of matter or pus, very thick. There were no roots in or about the cavity.

An X-ray picture, showed the jaw in perfect outline, also the molars in front with perfect fillings in each root. In washing out the cavity later, I noticed several times that a bubble would form down in the cavity. At each heart pulsation, that bubble would rise and expand until it came to the surface and of course explode as any bubble. What makes the bubble rise? What cause? Why has she had no pain? What treatment? Cavity is not healed.—H. C. H.

ANSWER.—I think you should have referred this case to an Oral Surgeon long ago for I confess it is beyond me, and it very evidently is a more serious condition than you are capable of coping with. Whatever the cause may be, your patient very evidently has a large area of necrosed bone requiring the attention of a specialist.

I believe that the sooner dentists and physicians alike, learn as individuals the gentle art of acknowledging graciously to our patients that we do not know it all, the better it will be for all concerned. We should not hesitate to state frankly when it is so, that the best way we can serve them is by referring them to the best man we know to take care of their particular needs.—V. C. S.

Question.—I would like to know which is the best karat gold or gold and solder to use for cusps for a cast cusp gold crown. I tried to use 22K gold for casting a cusp as an experiment but found that it did not adhere to the band.

ANSWER.—I do not believe your failure to have cusp unite with band was due to the 22K gold used. I always use about 21K and seldom have

an imperfect union. If you will dip the top of your band into soldering fluid and heat it up before applying casting wax, and then have flask pretty hot at the time of casting, I think you will have better luck.—V. C. S.

Question.—I read your "Practical Hints" column in the DENTAL DIGEST every month and have certainly gained a lot thereby.

I wish you would kindly tell me what to do with the following case:

After devitalizing a right lateral incisor, a broach broke off and remained in the canal. I took a drill and tried to drill around the broken piece and by doing so the joint of the drill broke off, making matters much worse. This happened a week ago. What would be your method of procedure in a case of this kind? What would be the possible outcome, if I were to let these broken pieces remain in the canal?—O. R.

ANSWER.—Referring to case in question: If you have kept canal sterilized and broach or drill does not protrude beyond root and if tooth is fairly comfortable, I believe you are justified in filling same, explaining the exact situation to the patient and suggesting that a check be kept upon the condition of the apical tissue by an X-ray picture every few years.

I know one dentist who claims that a broken broach makes the best possible root canal filling. This of course is absurd, but never the less I believe one is justified in allowing such a condition to remain if the situation is explained to the patient.—V. C. S.

Question.—As a subscriber to the DIGEST may I ask if you consider somnoform a safe and reliable anesthetic for extractions and if so what type of inhaler you recommend. It is little known here and is not mentioned in any book on Dental Anesthesia, which I have read, yet it gives, I believe, a much longer anesthesia than N_2O and should, if safe, be particularly good for children.*—H. J. F.

ANSWER.—I believe it is generally conceded now that somnoform is not as safe an anesthetic as N_2O & O.—V. C. S.

Question.—In casting inlays using the Elgin, and Taggart investment compound and also following out correctly the technic as outlined by the Taggart Company, also using 15 lbs. suction, I have been confronted with the problem of getting a little hole in the inlay right near the sprue wire. Using 24K gold and burning out the wax (Taggart) slowly for more than 2 hours. I used the standard investment compound and never had these difficulties.—A. B. N.

ANSWER.—Perhaps some other reader can give you a better answer, but my opinion is that you will avoid this trouble if you continue holding

*Somnoform and its action will be found in William Harper de Ford's "Lectures on General Anesthesia," 1912.

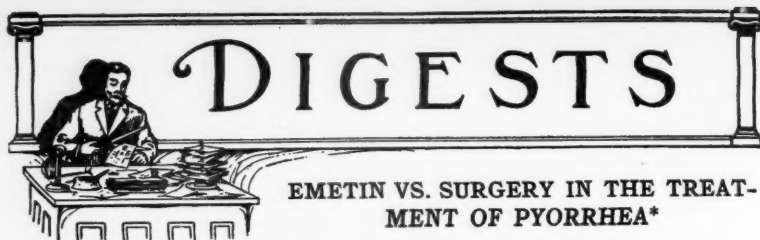
pressure with the pressure machine and keep nugget hot with suction until the inlay has had time to thoroughly congeal. These little holes I think are caused by the shrinkage of the gold in cooling and if it cools last in the inlay, naturally a bubble comes there.—V. C. S.

ANSWER.—Sometime ago (May 1915, p. 316) there appeared several replies as to removing tin foil from rubber plates after vulcanizing. A recent unhappy experience leads me to think perhaps the correspondent's trouble arose from the fact that maybe it was *not* tin foil that he had used but the stuff that is commonly called tin foil that is used to wrap candy, cheese, and various commodities, which should never be used. Anyway, it might save somebody trouble to specify that the advice given applies only to pure tin foil. Somebody might be as big a fool as I was.—D. W. B.

ANSWER.—I once had a case similar to the one described by F. R. G. in the July DIGEST, page 457, and got out of it much easier than the way suggested.

Drill a good sized hole through the occlusal surface of the molar crown, catch a hoe excavator on the cervical margin and pull down as far as possible. Syringe through the hole, using warm soapy water, until all debris and cement particles are washed out. Follow with warm alcohol then dry with hot air syringe. With jiffy tubes or cement syringe squirt the cement through the hole, use slow setting and plenty of it, cover hole with finger or beeswax and press crown to place. Repair hole with gold filling or inlay if tooth is short; bevel edges well and make inlay seating deep in pulp chamber. This method could not always be used, but rather than cut off four Richmonds, would give it a trial. The writer used it in a similar case and for the three years the patient remained under observation, it held. No originality is claimed; read it in some journal years ago.—L. S. B.

ANSWER.—If Dr. Herder, Mt. Vernon, N. Y., (August DIGEST, p. 523), will use a small Wedgwood mortar and pestle to triturate his alloy and mercury, and when thoroughly amalgamated, will wash with 95 per cent. alcohol (no water), till no discoloration of alcohol is shown and placing the mass on a clean linen napkin, folded several times with a broad spatula (pearl or ivory), thoroughly spatulate, turning it over and over till all moisture is removed, he will have a bright pure mass fit for any tooth that should be filled with an amalgam. Keep fingers off of it.—G. A. BOWMAN, St. Louis, Mo.



EMETIN VS. SURGERY IN THE TREATMENT OF PYORRHEA*

BY THOMAS B. HARTZELL, M.D., D.M.D.

Professor of Oral Surgery, College of Dentistry. Professor of Clinical Pathology, College of Dentistry. Research Professor of Mouth Infections, School of Medicine, University of Minnesota.

CASE I

This will be a very short paper, as it is intended to convey the results of the administration of emetin hydrochloride locally and hypodermically to a series of fifty cases. Though we will not give in detail the history of each one of the fifty cases, we will detail a certain number of them.

Case number one was a man fifty years of age, who had exhibited a very slow and chronic pyorrhea, which had been treated by surgical removal of dead root surface and curettage of the pockets. The result obtained had been imperfect, some suppuration still existing about four teeth. Amœbæ being present, it was thought worth while to supplement the surgical treatment by the administration of emetin. This patient received in all fifteen injections into the four pockets, which still showed suppuration. These injections were given during the fall of 1914. The patient is still under observation and still shows some discharge of pus from these same pockets. The emetin in no way checked the discharge and the case remains the same as before administration. I might add that all the emetin used in these cases was tested out against animals and was found to be active.

CASE II

The second case was that of a child twelve years of age who was rapidly losing all of her teeth, but still had present the upper centrals, cuspids, and bicuspid, the lower second molars, bicuspid and cuspid. The gums, swollen, red, and very painful to the touch, yielded very poorly to local anesthesia, making surgical treatment exceedingly difficult to perform. Therefore, emetin hydrochloride was administered as the last hope. This child had in all some twenty odd injections of a one per cent. solution made into her pyorrhea pockets, and in addition to the local

* Read before the Panama-Pacific Dental Congress, Section VIII, Sept. 7, 1915.

injection received the routine dosage advised by Bass and Jones, administered hypodermically. No change whatever was produced in the mouth, though the treatment was faithfully given. The child has since lost all of the upper teeth and all of the lower, except the two bicuspsids, the mouth being edentulous with the exception of the two teeth and the wisdom teeth which have not yet erupted. The child is vigorous, healthy, red-cheeked, in fact, remarkably well and with the handicap of no masticating apparatus.

CASE III

The next patient, two and a half years old, presented a green stain on the necks of all her deciduous teeth and considerable pus oozing from the gum margins of all of her teeth. The pockets had an average depth of one-eighth of an inch. In view of the fact that this child was very timid and exceedingly fearful of operative interference of any sort, local injections of emetin into all the pockets were practiced until fifteen injections had been given. In addition to this local treatment, this child, two and a half years of age, was given three doses of one-sixth grain of emetin hypodermically. No discernible change has been wrought in the tissues. They are still angry and inflamed and still discharging as much pus as when the treatment was undertaken.

CASE IV

Case number four was that of a man forty-five years of age, who had a sluggish pyorrhea particularly evident in the bicuspsids in both upper and lower jaws. This patient had a blood pressure of 185, and his urine contained, when first examined, three per cent. of sugar. Surgical treatment was attempted and carried forward with indifferent results. Emetin was administered hypodermically, three and one-half grains being given, one-half grain on three successive days, then three half grains on alternate days, then a rest of two weeks, then one-half grain, making in all three and one-half grains of emetin hydrochloride. The patient exhibited a marked general improvement in health. His resistance to physical wear and tear was considerably increased and he felt quite hopeful of cure. The sugar in his urine decreased quite markedly, but the suppuration about the teeth continued in spite of the use of emetin.

We then commenced the local use of emetin and injected it from time to time without any material change in the suppuration. Being exceedingly anxious to get rid of the infection, we checked up the root surface work carefully, then gave a series of injections of phenol, one part; tincture of aconite, two parts; tincture of iodine, three parts;

glycerine, six parts. These injections were delivered into the pockets with a hypodermic syringe armed with a blunt-nosed needle. Under the iodine treatment we had the pleasure of seeing all suppuration cease, so that at the present time nothing can be squeezed by firm pressure from these pockets.

CASE V

Case number five was that of a woman fifty-five years of age, who has suffered from pyorrhea for a number of years, having lost a number of her teeth by reason of its presence. Five half-grains of emetin were administered, one-half grain per day for three days, then two half-grains on two alternate days. After the last dose was given, the patient was seized with a terrific spasm of vomiting which lasted for several hours and caused great alarm, as the physicians who were called in charge of the case could not check the vomiting. No known cause of the vomiting was ascribed, unless it was the accumulative effect of the emetin. Slow recovery was made from the emesis. The tissues about the pyorrhea pockets remained much as before, tumid, swollen and still discharging some pus. Owing to the unsatisfactory result of the emetin administration, the patient has had no further treatment.

CASE VI

Case number six was that of a woman forty years of age who exhibited a chronic pyorrhea of arches. Treatment of one side of the mouth was undertaken surgically, and five doses of emetin hydrochloride administered hypodermically were given in the usual routine. I should say here that we use the glass syringe with metal plungers. The glass barrel and metal plunger can be taken apart and boiled. The needles used are platinum needles, and in addition to boiling they are burned in the flame before use. In preparing the patient for hypodermic injection for either vaccine or emetin hydrochloride, our custom has been to wash the area where the needle is to be inserted with alcohol, then after injection has been given to touch the wound made with the needle with tincture of iodine. This precaution was taken as usual with this case. Nevertheless, following the second injection the patient developed a red tumid swelling about half the size of an orange. This swelling was exceedingly sore and painful for three or four days, after which the skin cracked open, spreading apart some little distance, leaving a group of tender, raw-looking crevices. This was protected with carbolated vaseline and an arm shield, and after a period of five or six weeks slowly disappeared. The emetin hydrochloride used in this case was that

obtained from Burroughs, Wellcome & Company and was prepared by dropping the one-half grain tablet into boiling Ringer's solution. This kind of an inflammation following the use of emetin administered hypodermically has been noted in some six cases of the series. Why it arises I am unable to say. I have never noticed anything comparable to it and I am of the opinion it is chargeable to boiling of the alkaloid. Because of its inconstancy we thought possibly it might be due to infection, but such great pains had been taken, the boiling of our syringe, needles and solution, that we feel safe in stating that it certainly was not an infection, nor do the areas of inflammation behave as do those areas of infection known to the author.

In quite a number of cases we have had large black and blue areas, which usually change into yellowish green and finally fade out.

We continued the use of emetin hydrochloride in the college of dentistry, and our routine was in every case to examine for amœbæ, and, when finding them, to follow the case through with a series of hypodermic injection of emetin. The emetin was administered by our head nurse, and the subsequent observation of the cases were made by Doctor H. J. Leonard, who had charge of this clinic, the writer seeing most of the cases with Dr. Leonard from time to time. Doctor Leonard is authority for the statement that save for one exception he failed to see any benefit from the use of the emetin treatment. In one case we felt reasonably sure that there was a considerable reduction of inflammation and a lessening of pus flow, although not a complete cure. After waiting a sufficient period of time to reasonably expect cessation of pus flow and reduction of inflammation, we re-examined these cases for amœbæ usually failing to find them immediately after the emetin treatment, but in the course of a few weeks those cases which we have re-examined still produced amœbæ. On the whole, our experience gained from the administration of one quart of one per cent. emetin hydrochloride solution and one hundred grains of emetin hydrochloride has been distinctly unsatisfactory, as the results obtained have been in no way comparable to those gained by clean, careful surgery of the root surface.

SURGERY IN PYORRHEA CASES

Surgery of the root surface has been practised successfully since the time of Riggs, who in 1867 gave a clinic before the Connecticut Valley Dental Association, in which he demonstrated the entire successfulness of surgical treatment properly administered and we have had in this country since the time of Riggs many successful operators who have been able to secure cessation of pus flow and the return of hard and pink gums as a result of the surgical treatment. No one has a mortgage on the

method of producing this result. Doctor Younger has also left an enviable reputation in the fields where he has worked. Tomkins, Patterson, Fletcher, James, Skinner, Hutchinson, Stewart, Conzett, Buckley, Logan and many others have produced and are now producing results that are satisfactory to both patient and operator. It is probably strictly true to say that none of these men worked with the same type of instruments. The kind of instrument used is not the secret of success in the treatment of pyorrhea. The secret of success lies in a correct understanding of the anatomy of the root surface and perfect curettage of that root surface followed by such careful prophylaxis that the infection does not have an opportunity to regain a foothold, and as a choice between therapeutic treatment and surgery, surgery seems by far preferable. It is as illogical to expect a dirty root surface to become healthy from the injection of a therapeutic agent as it would be to expect an old infected wound with dead bone or foreign matter in it to become healthy by therapeutic means. Clean surgery and careful prophylaxis will give by far the greatest percentage of cures. It may be possible that there is a beneficial result which will flow from the use of emetin chloride as recommended by Bass and Johns, and Barrett and Smith. It would seem that in two of our cases we have had a benefit which should not be ignored, even though we have not secured the fine type of healing that follows clean surgery and careful subsequent prophylaxis. Many men are now studying the secondary effects of emetin hydrochloride, and my own feeling in the matter is that we should hold our final judgment until two or three years of observation has been given to patients who have been afforded treatment by this remedy.—*Dental Items of Interest.*

ALCOHOL AS A PUBLIC HEALTH PROBLEM

Significant of a changed attitude toward the use of alcohol on the part of the medical profession is the announced policy of the New York board of health which is attacking this problem from the standpoint of the public welfare. This policy is thus outlined (*Bulletin*, February 19, 1916): "The department of health has no sympathy with and will take no part in legislative or police restrictions or attempts to limit personal liberty in the use of alcoholic beverages. The spread of accurate information among the people as to the effects of alcohol can be depended upon to accomplish more than laws restricting its manufacture or sale. In the long run compulsory prohibition will not prohibit until the public is ready to cease using alcohol, when restrictive laws will be superfluous."

In pursuit of this policy a recent bulletin of the department presents

two timely papers in popular style. The first is on the sociological aspects of the alcohol question, by Donald B. Armstrong, director of the department of social welfare of the New York Association for Improving the Condition of the Poor. After reviewing the actual knowledge available of alcohol and its effects, Armstrong summarizes the arguments against its use under the indictments that it is a disease producer, both direct and indirect, that it is a vice and crime promoter, that it is a factor in economic waste. To meet these indications for action against alcohol, he recommends, first, a realization of the facts regarding alcohol with a careful avoidance of overstatement and prejudice; second, the radical and ultimate control of the problem by national prohibition of the manufacture and importation of alcohol; third, public education; fourth, the realization of the social point of view, recognizing the fact that the good of society as a whole is greater than the preference of its individuals and that society has an obligation for the success of a "social programme involving a more efficient social organization, the elimination of unnecessary human waste, and the provision of an environment which will make it possible for every individual to serve as best he may."

The second paper referred to is on life insurance and drinking habits, by Arthur Hunter, actuary of an important life insurance company. After reviewing the experience and statistics of a number of the large insurance companies in regard to the effect of alcohol on the insurance value of persons using it in varying degrees, Hunter concludes from the opinions of the medical directors that insurance companies do not favor applications from persons who drink freely, even though not to the point of intoxication, nor applications from those who formerly drank heavily but have stopped. Statistics prove that a higher rate of mortality is to be expected in those using alcohol, and that the rate is proportional more or less to the amount of alcohol consumed. He cites the experience of seven of the large American companies, which shows that abstainers have from ten to thirty per cent. lower mortality than nonabstainers. In short, it is conclusively shown that alcohol has an unfavorable effect on longevity and that total abstention materially increases longevity.

The course laid out by the New York health department, to consider the use of alcohol along educational lines, as a public health problem, might well be imitated by other health organizations as well as by private concerns.—*New York Medical Journal*.



AN EPITOME OF CURRENT DENTAL AND MEDICAL LITERATURE

[*The Dental Cosmos*, September, 1916]

Original Communications

Some New Forms of Orthodontic Mechanism, and the Reasons for Their Introduction.

By Edward H. Angle, M.D., D.D.S., Sc.D.

The Treatment of Epulis by Arsenous Oxid. By Dr. Oscar Amoëdo.

Care of the Mouth During Pregnancy. By M. Evangeline Jordon, D.D.S.

*The Present Status of Alveolar Osteomyelitis (Pyorrhea Alveolaris). Its Causes, and Treatment with Vaccines. By Leon S. Medalia, M.D.

War Dental Surgery: Some Cases of Maxillo-Facial Injuries Treated in the Dental Section of the American Ambulance at Neuilly (Paris), France (VI). By Dr. George B. Hayes.

The Normal Dental Arch. By Dr. Ales Hrdlicka.

The Present Status of Prophylaxis. By W. Stirling Hewitt, D.D.S.

Diseases of the Eyes in Focal Infections of the Teeth. By W. H. Haskin, M.D., F.A.C.S.

The Problem of Defective Teeth in the Boston Public Schools. By Wm. H. Devine, M.D.

Abuses of the Peridental Membrane in Orthodontia. By Clyde M. Gearhart, D.D.S.

Proceedings of Societies

Northeastern Dental Association.

Eastern Association of Graduates of the Angle School of Orthodontia.

Editorial Department

Dental Inefficiency.

Review of Current Dental Literature.

Periscope.

THE PRESENT STATUS OF ALVEOLAR OSTEOMYELITIS (PYORRHEA ALVEOLARIS). ITS CAUSES, AND TREATMENT WITH VACCINES*

By LEON S. MEDALIA, M.D., BOSTON, MASS.

Dr. Medalia in this article dwells, more especially, on the present status of this disease, paying special attention to the new claims made by various workers in this field as to its causation and treatment.

GENERAL SUMMARY

In summarizing briefly the subject under discussion, I would say that the alveolar process, so called, surrounding the root of the tooth is simply the thinned-out edges of the maxillary bone, while the socket is nothing more than an enlarged medullary space of the maxilla. The "peridental membrane," so called, is in reality made up of bundles of ligament fibers running from the bony processes of the maxilla and inserted into the

*Read before the Boston and Tufts Dental Alumni Association, April 12, 1916.

root of the tooth. They are arranged in a circular form, making a circular ligament, but it is a ligament, not a "membrane" nor a "periosteum." (Anyone may satisfy himself to that effect when he thinks how the acrobat can develop the strength of his teeth so that he can hold an anvil with them, with somebody hammering upon it.) In between these bundles of ligament fibers, we have spaces which connect with the medullary spaces of the maxillary bones and which are filled with loose medullary cells that hold the nerves and blood-vessels of the part.

The disease begins with a local irritation at the gum margin, causing a lowering of the resistance of the tissues locally, allowing the bacteria to implant themselves, reproduce, and cause infection. If the irritation be not at once removed, it is obvious that such infection, though mild at the beginning, would spread farther down toward the bone itself, causing congestion and sponginess of the gum and finally attacking and dissolving the alveolar process itself, forming fistulous sinuses or pockets; and if allowed to go on it finally destroys the whole of the bony socket, and the tooth is loosened. So much for the progress of the disease and its formation.

Referring now to the endamoebae and their relation to alveolar osteomyelitis: There seems to be very little evidence at the present time for the recent claims made that the endamoeba buccalis is the specific cause of this disease. Even if it had any pathogenic properties, which is very much doubted by very good authorities on this subject, there is no real ground to consider it the specific cause of this disease.

Whatever improvement has been noticed by the use of emetin could easily be explained by the increased attention given the patient by the dentist, by the hemostatic effect, and by the bactericidal or antiseptic action of the emetin. In those cases in which the pockets have been actually washed out with the emetin solution, I believe the improvement to be due to the improved drainage, and to whatever antiseptic value the emetin has—if not wholly to that—rather than to its amoebicidal action. So that we neither have in the amoeba the specific cause of this disease, nor in the emetin its "cure."

As to the deep injections of mercury in this disease, I feel that where improvement has followed its administration, it was due to the fact that some of the patients were probably primarily suffering from syphilis; while the vast majority of the cases thus treated by the men who claim that they can obtain 100 per cent. of "cures" with it, have been those, probably, of patients with very neglected mouths, where the gums have been aching for attention rather than for mercury. The pain produced by the deep intramuscular inoculations of mercury should always be kept in mind even when treating syphilitic patients, and for that reason

the internal use of the various iodids of mercury, or mercury with chalk, alongside of the salvarsan treatment, is to be preferred. Finally, the deep intramuscular injection of mercury will, I believe, be found of no more value in the treatment of this disease than its use in pulmonary tuberculosis, for which so much has been claimed by the same advocate of the mercury treatment. In the latter disease, as far as I know, the mercury succinimid has been faithfully tried, and has failed in the hands of various men throughout the country.

Relation of bacteria to this disease. The bacterial relation in this disease has been demonstrated by means of the bacteriological findings of smears and cultures; by the secondary systemic infections; by the response of the disease to the autogenous vaccine; and finally, by actual animal inoculation and the artificial production of inflammatory changes in the gums of dogs. Although the inflammatory changes produced in the gums of the dogs used were not lasting (possibly due to the good general condition of the dogs I have used for these experiments and the lack of local mechanical irritation), still it was sufficient to show that the organisms (*streptopneumococcus*) isolated from the alveolar disease do cause inflammatory changes if artificially inoculated into the gums of animals. There is a difference of opinion as to the nomenclature of this organism—some calling it *streptococcus viridans*, others *pneumococcus* or *strepto-pneumococcus*; the organism, however, remains the same by whatever name it is called. Personally, owing to its close relationship to the *pneumococcus* I considered it *strepto-pneumococcus*. However, even with the bacterial relation of such organisms to this disease being established, it is far from my mind to consider them as the "specific" primary cause of alveolar osteomyelitis. This disease really has local mechanical irritating causes, local bacterial causes, systemic general lowered resistance, and systemic diseases—all these may be concerned in its etiology; and if one is to hope for any cure in this disease he must be prepared to attack them all.

I can do no better in concluding than to repeat the conclusions I arrived at in 1912 on this subject:

CONCLUSIONS.

"(1) 'Pyorrhea alveolaris,' so called, is in reality a *chronic alveolar osteomyelitis*. It should be known and treated as such.

"(2) The sockets are enlarged medullary spaces of the maxillary bones, while the so-called 'peridental membrane' is in reality a *ligament* which keeps the tooth suspended in the alveolar cavity.

"(3) The mechanical causes are responsible for starting the disease,

while the pyogenic bacteria (pneumococcus, staphylococcus, streptococcus, and *M. catarrhalis*) are responsible for keeping it up.

"(4) Chronic alveolar osteomyelitis is a specific disease, though not in the sense that it is always due to one and the same organism. It is due to a variety of organisms already enumerated.

"(5) Systemic diseases play only a secondary part in starting the disease, but may be caused by it, and in turn become responsible for keeping up the local condition.

"(6) A great many rheumatic diseases, so called, also a great many gastro-intestinal affections, are, in my opinion, directly related to chronic alveolar osteomyelitis—'Riggs' disease.'

"(7) The vaccine treatment of this disease, together with the proper attention to diet, cures or relieves the systemic diseases, especially the rheumatic affections.

"(8) Vaccine treatment (immunotherapy), together with local mechanical treatment [and the proper attention to the general systemic condition of the patient], yields by far the best results in this intractable disease—CHRONIC ALVEOLAR OSTEOMYELITIS."

[*The International Journal of Orthodontia*, August, 1916]

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A New Method for the Relief of Lateral Tension in Cleft Palate Operation. By M. N. Federspiel, B.Sc., D.D.S., M.D., Milwaukee, Wis.

The Evolution of the Principles of Jackson Appliances (Part IV). By Joseph D. Eby, D.D.S., Atlanta, Ga.

Retention (Part I). By Frank R. Woods, D.D.S., Ann Arbor, Mich.

The History of Orthodontia (Continued). By Bernhard W. Weinberger, D.D.S., New York City.

Department of Dental and Oral Radiography

Clinical and Radiographic Evidence that Crown and Bridge-work is a Menace. By Julio Endelman, D.D.S., and James D. McCoy, D.D.S., Los Angeles, Cal.

Report of a Case of Dentigerous Cyst of the Mandible in Which the X-Ray Proved of Great Value. By E. F. Tholen, D.D.S., Los Angeles, Cal.

[*The Dental Summary*, September, 1916]

Regular Contributions

The Sequelae of Oral Foci of Infection. By Carl D. Lucas.

Mouth Infections and Their Relation to Mothers' Milk. By George Bailey Harris.

Rational Root-Canal Filling. By Harris R. C. Wilson.

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Extra Heavy Reinforced Gold Crowns. By G. A. Follett.

Dental Orthodoxy. By H. C. Sexton.

Novocain. By H. F. Koontz.

Gold Inlays From Pressed Metallic Models. The Advantages of the Indirect Method.
By C. A. Nixon.

*Systemic Damage From Focal Mouth Infection. By Warren L. Stamper.

President's Address. By Victor H. McAlpin.

An Opinion About Injurious Effects of Mercury in Amalgam Fillings. By R. L. McIntosh.

Establishing Free Municipal Dental Clinics. By John Zubrod and Victor Knapp.

Syphilis and Its Oral Manifestations. By Harry Langdon.

Cystic Odontomas. By G. B. New.

Some Observations on Professional Ethics. By J. M. Doyle.

Editorial

The National Dental Association Meeting.

Novocain and the Harrison Act.

SYSTEMIC DAMAGE FROM FOCAL MOUTH INFECTION

By WARREN L. STAMPER, M.D., D.D.S., INDIANAPOLIS, IND.

The question is not as to whether teeth are more commonly the cause of general infection, but the essential point is that they are just as liable to be the primary focus as are the tonsils and sinuses; and we must bear in mind also that in many cases no doubt there may be present several foci, so that in order to effect a cure it may be necessary to attack more than one focus.

The toothsocket has a structure similar to that of the joints, and a blind abscess at the apex of a tooth may have no more significance than the lesion in the joint. While it is proper to remove the teeth that are abscessed in a case of that kind, we should not expect that that is necessarily the source of the trouble, but must look still further.

The question of the focus of infection is a matter not only for the stomatologist or the dentist but for the general practitioner and the surgeon.

Peridental infection is by no means limited to the clinic patient; it is often found in those who have taken the utmost care of the teeth. In these cases the dental work has been faulty and the real status is only revealed by a Roentgenogram of the jaw. Crowns and bridgework are peculiarly liable to have incarcerated pockets of pus.

From Billings and others we learn that systemic disease due to a focus of infection anywhere is probably hematogenous in origin. If it finally is proven that systemic infection due to a focus of infection anywhere is blood borne, and that in case of a devitalized tooth the power of resistance is lowered, we will be driven eventually to a higher and better dentistry and incidentally to a proper consideration of the prevention of the necessity for the devitalization of teeth. In that event, probably the very best means for the preservation of teeth would be to cut all pits and fissures in premolars and molars immediately upon erupting, and resect all roots that the Roentgenogram shows positive.

The recent great increase in our knowledge of mouth infections is due to a new technic, and while our knowledge in this field still is incomplete, the newer radiographic technic often shows us changes in the bone about the root-ends which indicate a disease process, and in many instances the radiographic shadow can be said to be characteristic of root abscess.

Dr. Henry Ulrich has said that out of one thousand devitalized teeth examined by him, over seventy per cent. showed well-defined abscesses. Other investigators have shown even higher percentages, as high as eighty-five per cent. from cultures made from blind abscesses. Such an appalling percentage of failures ought to keep every thinking man from practicing pulp devitalization and root filling except it be under the most favorable circumstances and conditions, and then only with the full knowledge and consent of the patient who has been advised of the possibilities that may occur.

When we have accepted an individual as a regular patient, we have by no means acquitted ourselves of our responsibility to that patient when we have carefully cleaned his teeth, filled the few cavities and treated the few putrescent root-canals. There still remain other and exceedingly important responsibilities.

The first effort of good surgery, once pus is known to exist, is to establish free drainage. If this cannot be accomplished in whole or in part, dependence for the patient's safety must be placed upon what is commonly spoken of as his resistance, or in other words, his physiological ability to manufacture antibodies fast enough to destroy the toxins as they are absorbed.

A careful examination of the whole mouth should be made to ascertain whether there be manifested therein the clinical picture of any constitutional disturbance which requires treatment; if so, the patient should be made acquainted with the conditions and also should be directed to the specialist for treatment.

There are many constitutional disturbances which often are indicated by mouth conditions long before the patient is aware that he is sick or in need of a physician; and to look for and recognize these conditions, predisposing constitutional state, diathesis, disturbed metabolism—call it what you please, is the most important factor in these conditions.

[*The Dental Review*, September, 1916]

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Vincent Infection. By H. H. Schuhmann.

A Few Philosophical Thoughts on the Condition Pyorrhea. By Malcolm Robb

The Treatment of Children's Teeth. By L. B. Torrence.

Chronic Focal Infections Associated with Teeth. By Wm. H. G. Logan.

The Turkish Bath; What It Is; What It Does; How It Does It. By L. P. Haskell.

Proceedings of Societies

Odontological Society of Chicago.

Illinois State Dental Society, Fifty-second Annual Meeting, Held at Springfield, May 9-12, 1916.

Editorial

The Balance Wheel.

[Oral Health, September, 1916]

Photograph—The Late Howard James MacLaurin, D.D.S., Winnipeg.

*Health, Dental Science and Efficiency. By a Contributor.

The Importance of Correct Posture, With Especial Reference to the Use of the Feet. By C. Stewart Wright, M.D., Toronto.

The Microscopic Examination of Finger Nail Deposits. By Albert Schneider, Ph.D., M.D., San Francisco.

Report of the Free Dental Dispensary, Poughkeepsie, N. Y. By Stephen Palmer, D.D.S., Poughkeepsie, N. Y.

Septic Teeth. By J. Sayre Marshall, M.D., Sc.D.

Periodontia. By Paul R. Stillman, D.D.S., New York.

In Appreciation of the Late Howard James MacLaurin, D.D.S. By Manly Bowles, D.D.S., Winnipeg.

The Research Fund of the National Dental Association. By C. N. Johnson, M.A., L.D.S., D.D.S.

Dominion Dental Council Examination Results.

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Dental Operations Performed by Officers of the C.A.D.C. in England and Overseas.

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HEALTH, DENTAL SCIENCE, AND EFFICIENCY

BY A CONTRIBUTOR

The object of these lines is to direct more attention to the preservation of one's health and comfort, and to see if there are not ways by which much of the harmful conditions can be ameliorated or relieved.

In these days when people are awaking to their needs as related to dentistry, and so much is being learned by our profession as to ways and means as to prevention and cure, there is no doubt but that the sense of responsibility on our part is becoming more and more impressive, and it is hopeless to do, as individuals, all that is demanded in every phase of work. The call to this service can surely not be best fulfilled by plunging in heedlessly to accomplish the impossible, and thus doing ineffective and probably short-lived service. It is rather by deliberately selected and carefully executed work that of itself will stand effectively, leaving the operator better satisfied with himself, and bringing about as little as possible of that mental and physical exhaustion which renders his future effort less serviceable and shortens the period of his calling.

One of the ways in which the operator's life may be eased is by securing

the confidence of his patient. If the latter can be duly impressed with the fact that you know your work (not by your telling him so, but by manner and action), if he can be brought to believe that you are giving every possible consideration to his good, then there comes that harmony that assists both to relax and be restful.

It is well for a dentist to so arrange his appointments that operations of the more exhausting character will not follow one another, and that so far as possible these should be undertaken during the hour of the day that finds him with energies alert and unimpaired.

The position of the operator is important. Fortunate is the man who is ambidextrous and is not confined to the necessity of so continuously retaining that posture that cramps the heart and brings too rapidly the stoop to the shoulders. Numbers of men use the mouth mirror and the angle hand-piece too little, and so are resorting to positions that involve unnecessary muscular strain.

The young man, not yet too rigidly confirmed to habit, should cultivate the use of an operating stool. It seems very difficult for an older practitioner to cultivate its use.

Outside of the direct relation to the patient, the surroundings of a dentist add largely to his comfort and his sense of ease in his work.

His assistant should be instructed in such a way as to be capable of relieving him of very many of the business dealings with his callers, and she should have an office with an equipment which would care for most of these calls, and also afford opportunity for all secretarial work. With such an assistant capable of bookkeeping, arranging appointments and looking after supplies, much of the laborious and often annoying effort is transferred to others.

The assistant at the chair can be made an important aid in relieving oneself of simple, but necessary details.

The appointments of the operating room should not necessarily be ostentatious or too manifold. Simplicity, with effectiveness, is more soothing to the patient and just as serviceable to the operator. The ready access to the needed article and an outfit which will most readily supply the applicable instrument will save in the end a remarkable amount of time and effort.

The pleasure of contact with our fraternity and the inspiration that each has the power to give, is always a delight, and surely gives a stimulus that is at once a relief from daily toil and an aid to future effort.

Gray hairs, or the lack of them, should not be an evidence of slipping down hill; but clearness of mind, steadiness of hand will be the gauge of a man's age and fitness; for in dentistry, surely, "a man is as old as he feels."

The number of hours in a day that should be engaged in labor is impossible of definite statement. The danger line should be carefully watched for and restrictions put on early.

The value of vacations, air, exercise, and good food, with sufficient time to properly eat it, need only to be mentioned to be recognized as important.

One thing that at first thought might seem contrary to the intent of this paper, but is really entirely in accord, is the real value of lending direct assistance to outside interests. At all times there are social, philanthropic and political interests that should appeal for our co-operation.

To sum up in a word, it may be said that the man who can bring about those conditions in self and surroundings, which will make work enjoyable and satisfying; who will know when to ease up and when to refrain, and will take advantage of the everyday opportunities for culture, social service and physical refreshment, will do the most beneficent service and live the most comfortable professional life.

[*The New Jersey Dental Journal*, August, 1916]

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[*Oral Hygiene*, September, 1916]

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Mouth Hygiene for Children. By Dr. Gustavo Pires, San Paulo, Brazil, S. A.
The Diminishing Dollar. By D. W. Barker, M.D.S., Brooklyn, N. Y.
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Mouth Hygiene in Cleveland. By Harris R. C. Wilson, D.D.S., Cleveland, Ohio.
Asinine. By Joseph Pettee Copp, D.D.S., Los Angeles, Calif.
General Plan of the Proposed Work at the Eastman Dispensary. By Harvey J. Burkhart, D.D.S., Rochester, N. Y.

Oral Hygiene in the Schools of Porto Rico. By Raymon G. Goycoy, D.D.S., Porto Rico.
The Size of Little Things.
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[*The Dental Journal*, August, 1916]

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Malocclusion of Artificial Teeth. By Frederick W. Frahm, Ph.G., D.D.S.
Pyorrhea Alveolaris, Alveolar Abscess and Their Relations to Arthritis. By Harry A. Goldberg, D.D.S.
The Value of Bacterial Vaccines in the Treatment of Pyorrhea. By George Bailey Harris, D.D., Sc.M.
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Addresses on the Relation of Dental Hygiene to Public Health. By Dr. Ira S. Wile, Dr. I. Von Sholly, Edward F. Brown.
The Efficiency of the Dentist as Affected by Weak Feet (continued). By S. W. Boorstein, M.D.
What Can the Dental Hygienist Do for the Profession and the Public? By J. J. Kallenbron, D.D.S.
An Amalgam Inlay. By S. Siegel, D.D.S.
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The New Dental Department of Columbia University.

[*The Dental Outlook*, September, 1916]

Infections Arising from Apical Ends of Tooth Roots. By Percy R. Howe, A.B., D.D.S.
Partial Dentures. By W. E. Cummer, D.D.S., L.D.S.
Amalgam and Its Possibilities in Badly Broken Down Teeth. By Marcus L. Ward, D.D.Sc.
President's Address, Maine Dental Society. By Arthur L. Chase, D.D.S.

The Power of the Machine. By Charles M. Proctor, D.M.D.

Further Remarks on the Validity of Marshall's "Salivary Factor" for the Biochemical Determination of Susceptibility to, or Immunity from, Dental Caries. By William J. Gies.

[*The Louisville Monthly Journal*, September, 1916]

THE RELATION OF MOUTH INFECTION TO GOITRE

By E. H. REEDE, M.D., WASHINGTON, D.C.

To-day there is developing throughout the country a class of dentists whose opinions are based upon carefully weighing evidence and who are devising and carrying out operative procedures as delicate in technic as some of the more important surgical operations. And the time has come when the surgeon and internist now feel that in the presence of a general systemic infection they need the scientific dentist in consultation, who shall in the first place give or withhold a clean bill of health as regards the mouth, and in the second place, who, finding a focal infection, will actively and adequately erase it from the clinical picture by appropriate measures.

A third phase is seen when in the presence of ill health, the dentist may be the first to find the infection, and by insistent efforts at identification may isolate the organism at the only time and place that it comes within culturing distance of an observer. It is, I realize, a great responsibility to foist upon the members of a profession who had become to be regarded as the essential artisans of pulchritude, to tell them that they are not only the conservators of health but the custodians of life itself; but great responsibility breeds great knowledge, and I believe the greatest advance in medicine in the next decade will be the offspring of this alliance of doctor with dentist. This is not so chimerical to assume if you stop to realize that that form of Bright's disease known as chronic glomerulo nephritis seems shown by the work of Councilman, Libman and Baehr to be caused by that organism peculiarly dental in its habitat, the streptococcus viridans. Moreover, Rosenow's most recent work reports the isolation in 29 cases of fibrocystic ovaries out of a total of 51 cases of this green growing streptococcus. So that it is not impossible that the future attitude of our dentist toward the bacterial flora of the mouth will add or subtract actual years to or from our life.

No organ is more untrenched against the inroads of the bacterial hordes of the mouth than is the thyroid gland, and this mainly by reason of the lymphatic channels which Ehrhardt has shown exist between the submaxillary and sublingual glands and the thyroid.

The relation of infection of the tonsils and accessory sinuses has been most markedly emphasized by Beebe who, from observations made on

3,500 cases of exophthalmic goitre, concluded that between the ages of 16 and 24 about 38 per cent. had a nasopharyngeal infection. Beebe's opportunities for observation have been exceptional, and he has furthermore delimited a clinical group of symptoms in thyroidism which may be termed chlorotic type of hyperthyroidism, because of its confusion with true chlorosis. This consists of the occurrence in girls between the ages of 12 and 20 of an enlarged thyroid, chronically infected tonsils and adenoids, gastro-intestinal disorders with constipation, and moderate nervous heart symptoms. He believes this to be the starting point of most exophthalmic syndromes.

Billings first noted the relation between alveolar abscess and goitre and reported a series of cases where prompt subsidence of the thyroid enlargement and of the symptoms followed removal of the foci of infection in the jaws.

I wish to-night to cite from my own experience some observations on the coincidental occurrence of thyroid enlargement and oral sepsis in which the infection seemed to affect the gland independently of the tonsillar or other source of infection, and to comment upon a syndrome common in young children ranging in age from 5 to 12. Halsted's experience that the postoperative fragment in the dog tended to hypertrophy if the wound was infected, throws a suggestive light upon the case of Mrs. L., aged 24, from whom Dr. Edward Parker some seven years ago removed the isthmus and one lobe for cosmetic reasons. Dr. Parker assures me that at that time Mrs. L. had absolutely no signs of over-activity of the gland. At the present time she exhibits an enlargement of the fragment greater than the original goitre. There is evidence of over-secretion, in a tachycardia constantly over 100, a tremor of the hands, marked insomnia, intense headache, irritability, and general nervous instability. Her mouth is very bad; there are several carious teeth, a supernumerary incisor and considerable marginal irritation and recession of the gums. The tonsils are large and fibrous. One feels that the glands have suffered in the presence of this mouth condition.

An exacerbation of a mouth infection is at times very closely connected with the appearance of thyroid enlargement and even exophthalmic symptoms. Miss T., age 35 represents a frank type of exophthalmic goitre as well as an instance of extensive dental engineering in that she has four sets of bridges. She is probably the most toxic case of goitre occurring in Dr. Mitchell's service this year. Her disease reached a crisis in March, 1915, when she had continuous vomiting, bulging eyes and cardiac insufficiency, following an increasing nervousness of two years. Just prior to her ill health, i. e., about three years ago, she had her dental work installed, which was followed by the appearance of an

alveolar abscess. At the present time there is a bad gum infection with recession and much foul retention under the bridges.

[*Medical Record*, August 19, 1916]

INFANTILE SCURVY AND PASTEURIZED MILK

In the discussion of a paper by Dr. Funk on "Vitamines, a New Factor in Nutrition," at the Academy of Medicine, Dr. L. Emmett Holt expressed the opinion that infantile scurvy was undoubtedly on the increase in New York City and that the increase was due to the exclusive use of pasteurized milk in the artificial feeding of infants. That this conclusion is probably correct is indicated by the interesting clinical observation reported by Dr. Alfred Hess at the same meeting. Hess found that a mild grade of scurvy developed in a group of infants artificially fed on pasteurized milk and barley water, while a control group, to whose diet orange juice was added, but who otherwise received the same milk modifications as the first group, remained entirely free from scurvy.

Among the infants in the first group the scorbutic symptoms promptly disappeared on the administration of orange juice.

Most of the cases of infantile scurvy now being encountered are of a milk type; so mild, in fact, that many of them escape recognition even at the hands of experienced physicians. On the other hand, the dangers of milk-borne disease are real, and constantly carry with them a grave menace to life through tuberculosis, typhoid fever, septic sore throat and other infectious diseases. In contrast to this we have a mild grade of scurvy which can readily be prevented or cured by the addition of a little orange juice to the diet. Furthermore, a safe raw milk (guaranteed or certified) is available for those cases in which pasteurized milk even with the addition of ample antiscorbutics does not meet the requirements. Such cases must be extremely rare.

Instructions have been given by the Department of Health to the physicians and nurses in charge of its milk stations and of the baby welfare work in the homes to be on the alert for any of the early signs of scurvy and to insist upon the use of orange juice or other suitable antiscorbutics when babies are exclusively bottle-fed on pasteurized milk. While the Department of Health has no intention, therefore, of altering its policy with regard to pasteurization, physicians may rest assured that it likewise does not contemplate or look with favor upon any administration of milk control in any community which eliminates the privilege of securing a safe high-grade raw milk for those whose lives may depend upon its use.—*Weekly Bulletin of the New York City Department of Health*.

[*New York Medical Journal*, August 26, 1916]

CARING FOR MILK IN THE HOME

The three C's for the proper care of milk in the home are: Keep milk clean, cold, covered.

The practitioner should draw the attention of his patients to the fact that milk is a highly perishable food, and the length of time it will remain sweet and safe, especially for children, depends almost entirely upon the constant care it receives between cow and consumer. Milk passes through three agencies—the producer, the dealer, and the consumer. If the first two have done their part, clean, safe milk will be delivered, thoroughly chilled, to the consumer. The consumer's responsibility begins the moment the milk is delivered at his doorstep.

Tell mothers who do not nurse their babies that because milk poured from vessel to vessel on the street is very liable to contamination from dust, manure particles, and germs, it is best delivered in capped bottles. If bottled milk cannot be obtained, the housewife should try to have someone in the family receive the milk in a clean, scalded utensil, cover it instantly, and put it without delay into the refrigerator, or the coldest available place. Under no circumstance should an uncovered pitcher, bowl, or pan be left out on the porch to receive bulk milk. The vessel, both before and after the milk is poured into it, is accessible to flies and collects particles of dust and dirt.

Even in the case of bottled milk, however, the consumer must see that the bottle is not left out in the heat for a moment longer than is necessary. Milk should be delivered and kept at a temperature of 50°F. or lower—the colder the better. At such temperatures bacteria develop very slowly and milk undergoes little change until consumed. A slight rise in temperature above this point, however, permits bacteria to multiply rapidly and brings about rapid deterioration of the milk, which may render it unfit for ordinary use and make it highly dangerous for babies and little children. For this reason bottled or other milk should not be allowed to remain in a warm place, as on a sunny porch or in a hot kitchen, for a moment longer than is necessary.

DELIVERY OF MILK IN HOT WEATHER

In hot weather the best plan is to have the milkman put the milk directly into the refrigerator, because at that time of year milk cannot be kept properly without ice. If a refrigerator is not available, provide a small box containing ice, and if ice is unobtainable, provide some tight container with insulated walls that keep the heat from getting rapidly

to the cold milk. A home-made fireless cooker is admirable for this purpose, especially if partially filled with ice. In the absence of any of these devices, arrange, with the milkman not to leave the milk in the sunlight, but to put it in the coolest, shadiest place around the house. If the bottle is wrapped in a piece of clean unbleached muslin and stands in cool water, the cloth will be kept wet by capillary attraction, and the evaporation of the water will keep the milk cool.

HANDLING MILK IN THE HOME

In handling milk around the home, do not pour it from one vessel to another until it is to be consumed. Do not let the bottle of milk remain out of the refrigerator a moment longer than is necessary. Keep the milk covered, using paper caps or an inverted tumbler on bottles, or store it in clean, covered utensils.

Before opening a bottle of milk, wash and wipe the neck and outside of the cap with running water. The little depression on the top of the cap may collect dust or water and any milk that leaks out may attract flies. Lift out the cap with a pointed instrument or piece of sharpened wire kept for the purpose, so that the outside of the cap, which may be contaminated, will not be pushed down into the milk. Each time the milk is to be poured from the bottle, it is a wise precaution to wash the neck as described.

MILK IN A REFRIGERATOR

The refrigerator where milk is stored should be cleaned regularly, especial care being given to keeping the drip pipe free and clean. The ice rack also should be cleaned, and any place where food is kept or milk stored should be scalded occasionally with sal soda solution. The refrigerator, even though cold, may quickly be contaminated by a few drops of spilled milk, or by small particles of food. No matter how clean the refrigerator, milk should never be kept in an open vessel.

CLEAN EMPTY BOTTLES

Do not return dirty bottles and do not use milk bottles except to hold milk. Returning dirty bottles to the milkman may mean that a few days later either you or your neighbors will get contaminated milk. In towns with proper sanitary regulations, this practice is forbidden by law. Milk bottles should never be taken into a sick room. Where infectious or contagious disease is in the house, all bottles should be boiled thoroughly and should not be returned to the dealer without the express permission of the attending physician.

WHERE THERE ARE CHILDREN

Care of milk, important for all, is a vital necessity in a home where there are children. It is absolutely essential to the safety of babies. No careful mother will leave to a servant the task of caring for or preparing the milk for her baby. Mothers of small children should get, from their own physicians, explicit directions for the proper handling of milk and for cleaning and sterilizing nursing bottles. Pamphlets on infant feeding may be obtained from the municipal milk stations or health officers. Milk for babies cannot be kept too cold, and too much care cannot be given to keeping it clean and covered.

Further information on this subject may be had by writing to the U. S. Department of Agriculture, Washington, D. C., for Farmers' Bulletin 413, *Care of Milk and Its Use in the Home*.

[*Journal of the American Medical Association*, August 19, 1916]

THE INFLUENCE OF DIET ON THE DEVELOPMENT AND HEALTH OF THE TEETH*

By JAY I. DURAND, M.D., SEATTLE, WASHINGTON

The steadily increasing tendency of the teeth of all civilized races to decay is one of the remarkable facts of human pathology.

An examination of 10,500 schoolchildren of England and Scotland showed caries in 86 per cent.; of 19,725 in northern Germany, 95 per cent. School children to the number of 3,236, from 7 to 14 years of age, examined by Dr. McCullough of Philadelphia, showed decay or loss of 5,575 first molars and 2,188 of the other permanent teeth.

There is no doubt that our grandfathers had better teeth than we have, but the great extent of this steadily increasing process is best appreciated by investigations of our more distant ancestors.

Mummery in an examination of ancient British and Anglo Saxon skulls found decay in only 15 per cent. of Anglo Saxon skulls, 2.9 per cent. of British skulls of the Stone Age, 21.8 per cent. of British skulls from the Bronze age, and 32 per cent. of British skulls from the Romano-British Age. Among uncivilized races 1.4 per cent. of Esquimaux showed decay, 3 per cent. of Maoris, 3.9 per cent. of Indians of northwestern American coast, 9.5 per cent. of North American Indians, 5.2 per cent. of Fiji islanders.

Pickerill found decay in only 0.76 per cent. of 260 Maori skulls from an uncivilized age, yet Maori children brought under civilized conditions in two schools which he examined showed 15.6 per cent. of the teeth to be carious.

*Read before the Section on Diseases of Children at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

The importance of good teeth in the general health of the individual will hardly be questioned by anyone in this section. Any new observation bearing on the subject should be of interest.

Three years ago the Department of Public Health of Seattle examined the teeth of 2,000 children from 2 to 7 years of age. The work was carried out by Dr. Mabel Seagrave in a commendably thorough and painstaking manner. Those who had been fed six months of the first year on any one form of nourishment were tabulated with results as follows:

Food	No. Examined	No. Showing Caries	Percentage of Caries
Breast milk.....	859	366	42.6
Cows' milk mixtures.....	232	102	42.9
Sweetened condensed milk.....	61	41	72.1

During the past year I have enlarged these statistics by an examination of children at the Better Babies Contests, held in Seattle and Breerton, Washington, and children seen in private and dispensary practice. My results seem to confirm the earlier statistics.

From better babies contests the following results were obtained:

Food	No. Examined	No. Showing Caries	Percentage of Caries
Breast Milk	418	118	28.2
Cows' milk mixtures.....	102	30	29.4
Sweetened condensed milk.....	32	17	53.1

Of 104 cases collected from private and dispensary practice in which the children had been fed five months or longer on sweetened condensed milk, seventy-seven, or 74 per cent., showed caries of the teeth.

The significance of these statistics is that a poorly balanced diet, high in carbohydrate and low in fat, protein and mineral constituents, fed during the period in which the teeth were developing and calcifying in the jaws, seems to have rendered them doubly susceptible to decay after they erupted.

Confirmatory evidence is added by the fact that the first molar, in which the articulating surface calcifies during the first year of life, shows vastly more imperfections, faults, fissures and absence of enamel and is three times as frequently decayed as the third molar, which does not begin to calcify until the ninth year of life.

These facts emphasize the importance of a well-balanced diet during infancy. Such a diet I should consider breast milk, a properly modified cows' milk, when this is unobtainable, with the early addition of vegetables, fruits and meat.



BOOK REVIEWS

WHO'S WHO IN DENTISTRY. Biographical sketches of prominent dentists in United States and Canada. Compiled by Samuel Greif, D.D.S. Published by The Who's Who Dental Publishing Company, 246 New Lots Road, Brooklyn, N. Y.

This volume is somewhat new in the dental profession though such a work may be found in almost all other professions. It is quite interesting, as its title would imply, and shows considerable work on the part of the compiler. Each name given has a short history attached giving the birthplace, where educated, and in some instances the present residence. We correct one error. Dr. J. Leon Williams' address is 220 West 42nd St., New York City, and not London, England, though he has spent many years of his life in London.

We have also one other criticism to make; we miss the names of many quite prominent and well-known dentists, men who have earned high distinction in their profession. This, we assume will be rectified in a new edition, which we understand will come out soon.

We wish success to the book. It is one that should prove of immense value to the dentist.

BOOKS RECEIVED

CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE. YEAR BOOK for 1916.

CROWN AND BRIDGE WORK. By FREDERIC A. PEESO, D.D.S., Director of the Dental Graduate School of the University of Pennsylvania. Octavo, 456 pages, with 752 engravings. Cloth, \$5.00 net. Lea and Febiger, Publishers, Philadelphia and New York, 1916.

THE AMERICAN YEAR-BOOK OF ANESTHESIA AND ANALGESIA. By various contributors. F. H. McMECHAN, A.M., M.D., Editor. Quarto; art buckram; India tint paper; 420 pages and 250 illustrations. Surgery Publishing Company, 92 William St., New York City, 1916. Price \$4.00.

FUTURE EVENTS

- October 9-11, 1916.—Missouri State Board of Dental Examiners, Jefferson City.—V. R. McCUE, Cameron, Mo., *Secretary*.
- October 9-15, 1916.—Arizona Board of Dental Examiners, Phoenix, Ariz.—EUGENE MC-GUIRE, 302 Noll Bldg., Phoenix, *Secretary*.
- October 11-13, 1916.—The Northern Dental Association will meet at Foot Guard Armory, Hartford, Conn.—ALVIN A. HUNT, 125 Trumbull St., Hartford, Conn., *Secretary*.
- October 12-13, 1916.—Northern Indiana Dental Society, Twenty-eighth Annual Meeting, Kokomo, Ind.—CHARLES A. PRIEST, *Secretary*.
- October 18-20, 1916.—Virginia State Dental Association, Richmond, Va.—DR. C. B. GIFFORD, Norfolk, Va., *Secretary*.
- October 31—November 1-3.—The Dental Manufacturers' Club of the United States; exhibition of Dental products.—Roof Garden, Bellevue-Stratford Hotel, Philadelphia, Pa.
- November 7-9, 1916.—Meeting for the examination of candidates by the Rhode Island Board of Registration in Dentistry at the State House in Providence, R. I.—WILLIAM B. ROGERS, 171 Westminster St., Providence, R. I., *Secretary*.
- November 8-9, 1916.—The Northwestern District of the Iowa State Dental Society will hold its Annual Clinic and Manufacturers' Exhibit at Martin Hotel, Sioux City, Iowa.—C. E. WESTWOOD, *Secretary*.
- November 13-18, 1916.—Michigan State Board of Dental Examiners, Dental College, Ann Arbor.—E. C. GILLESPIE, *Secretary*.
- November 16-18, 1916.—St. Louis Dental Society, Planters Hotel, St. Louis, Mo.—CLARENCE O. SIMPSON, Century Bldg., St. Louis, *Secretary*.
- November 20-26, 1916.—The Indiana State Board of Dental Examiners, State House, Indianapolis.—FRED J. PROW, Bloomington, Indiana, *Secretary*.
- December 5-7, 1916.—Ohio State Dental Society, Dayton, O.
- December 6-9, 1916.—Pennsylvania Board of Dental Examiners, Musical Fund Hall, 808 Locust Street, Philadelphia, and at the University of Pittsburgh, Pittsburgh, on Wednesday, Thursday, Friday and Saturday.—ALEXANDER H. REYNOLDS, 4630 Chester Ave., Philadelphia, Pa., *Secretary*.
- December 13, 1916.—Next examination for a license to practise dentistry in California; held in San Francisco.—C. A. HERRICK, 133 Geary St., San Francisco, *Secretary*.
- January 23-25, 1917.—American Institute of Dental Teachers, Hotel Adelphi, Philadelphia, Pa.—ABRAM HOFFMAN, 529 Franklin St., Buffalo, N. Y., *Secretary-Treasurer*.

PATENTS

- 1134833—Dental engine tool guard, Frank F. Fischer and C. M. Kaletsky, New York, N. Y.
- 1134450—Tooth-brush, Ernest S. Goldy, Haddonfield, N. J.
- 1134680—Fastening for an artificial tooth, James W. Ivory, Philadelphia, Pa.
- 1134459—Folding tooth-brush, Loeser Kalina, New York, N. Y.
- 1134692—Dental marking and spacing tool, Walter L. Mason, Red Bank, N. J.
- 1134965—Artificial tooth, Albert H. Taylor, Liverpool, England.
- 1135007—Artificial tooth, Gustav E. Fritz, Chicago, Ill.
- 1135312—Bridge mold, John G. Miller, Oblong, Ill.
- 1135922—Brush-guide for dentifrice containers, John Rebrovich, Pittsburgh, Pa.
- 1135625—Bur-stand, Ralph B. Savin, Philadelphia, Pa.
- 1135629—Dental articulator, Horace F. Smith and H. S. Dano, Los Angeles, Cal.
- 1136649—Dental instrument, Harry M. Brock, North Yakima, Wash.
- 1136100—Dental instrument, Herman E. S. Chayes, New York, N. Y.
- 1136664—Artificial tooth, Gustav E. Fritz, Peoria, Ill.
- 1136491—Acetylene blowpipe, Elmer H. Smith, Minneapolis, Minn.

Copies of above patents may be obtained for fifteen cents each, by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.